LESSONS IN INFANT MANAGEMENT

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By

FLORENCE LESSELS MATHER

Certified Midwife; Associate of Royal Sanitary Institute
Author of "Hygiene and Temperance"
"Home Nursing," etc.

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PREFATORY NOTE.

This little book is designed to meet the requirements of teachers of Evening Classes and Elementary Schools who wish to teach the important subject of Infant Care and Management, under the Board of Education's Circular 758. The work is in accordance with that Memorandum.

As the treatment is plain and simple, the book may be used as a Reader by the girls of the Upper Standards.

It will also be found useful for women who are preparing for examination for the posts of Health Visitors and School Nurses.

CONTENTS.

I.	Introduction	7
II.	Baby's Food	12
III.	Baby's Food (*Continued*)	20
IV.	Weaning and After	28
V.	Baby's Sleep	32
VI.	Baby's Clothing	40
VII.	Baby's Short Clothes	50
VIII.	Baby's Outdoor Clothing	56
IX.	Vaccination	62
X.	Teething	66
XI.	Baby's Toilet	71
XII.	Baby's Outing and Exercise	81
XIII.	Baby's Training and Habits	87
XIV.	Baby's Ailments—I.	92
XV.	„ „ II.	98
XVI.	„ „ III.	102
XVII.	Recipes suitable for Baby	106

INFANT MANAGEMENT.

CHAPTER I.

INTRODUCTION.

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men decay."

PUBLIC attention has lately been frequently directed to the very high death-rate of infants in this country. This, taken in conjunction with our rapidly diminishing birth-rate, is alarming, and ought to be given the prominence which its personal, national, and imperial importance demands.

The evil of this high death-rate among babies is twofold. There is, first, the actual loss of life involved, when less than three-fourths of the children born alive survive to the age of five years. In addition to this, the bad conditions which cause such a death-rate *must tend* to injure, enfeeble, and deteriorate the health of those who do survive. These, with weakened constitutions, often succumb later to attacks of such childish ailments as measles or whooping-cough, or, if they live, go to swell the ranks of the "physically unfit."

Medical authorities agree that most babies are

born healthy, and many causes are assigned to account for the high infant mortality which affect life in great cities as distinguished from rural life, such as extreme poverty, or drunkenness on the part of one or both parents; but all authorities are agreed that a very large number of these deaths are due, not so much to wilful neglect, as to *ignorance* and carelessness.

There is great ignorance of the principles which underlie the proper rearing of the baby during its first year—the most important of its life, as far as health is concerned. Many women have never had the opportunity of learning how to manage a baby, and the art does not come by instinct. Educational authorities are now realizing the vital importance of dispelling this ignorance, and of teaching the girls of to-day, who will be the women of to-morrow, at least the elements and essentials of infant management. This is as it should be. The proper care and management of babies lies at the root of the prevention of infant mortality, and also of the wider and greater question of raising the standard of physical health generally; of the greater comfort and cleanliness of the home and its surroundings; of the saving of a great deal of needless suffering and misery, and even of the raising of the moral tone of society.

That greater knowledge of mother-craft lessens the death-rate and improves the physique of the young has already been abundantly proved. In cities and districts where special efforts have been made to spread information by means of classes, schools for mothers, etc., the death-rate has gone

down considerably, and a better standard of health has been obtained.

The Board of Education (England) in 1910, issued a circular from its medical department (758) advising, and rightly urging, the simple teaching of infant management, as well as other domestic subjects, to all girls before leaving the elementary schools. Local education authorities are rapidly making arrangements to provide this teaching, and it is in the hope of helping those who will have to teach this vital and most important subject that this little book has been written.

Of course no two babies are exactly alike; each child has its own idiosyncrasy; but if women and girls are taught the general principles and rules which make for the rearing of healthy children, they will be the better able to alter and adapt them to the case of the individual child under their care. For women this is surely one of the most important of all questions.

The teaching of this subject should first of all be *practical.* While some knowledge of a theoretical kind must be imparted, it is perfectly possible to give all the necessary practical demonstrations in any ordinary classroom. It should be remembered that many of the elementary school children come from poor homes, where no special appliances are to be found, and therefore only the simplest apparatus should be used.

The girls should be directed to bring from their homes as much as possible of the necessary equipment; and many, if not most, of the things needed can be made by them at home under the direction and superintendence of the teacher. A further advantage

of this is its bringing the mothers and homes into more direct relation with the school, to their mutual benefit.

Circular 758 says: "The cost of everything made should be clearly shown, and emphasis should be laid on the fact that things may be clean, pretty, and dainty, even though inexpensive."

The teaching should be simple, direct, and in plain language, avoiding technical terms; it should form part of a wider course, and should not be taken until the girls have mastered the elementary rules of health, both personal and domestic.

If the lessons are given in conjunction with a *crêche*, or day-nursery, the girls will have the opportunity of handling, washing, and dressing babies; but this is not always possible or practicable. It is now possible to get "model baby" dolls, which conform closely to the size and shape of a real baby, and one of these will do sufficiently well for demonstration purposes. There are four kinds of dolls which may be used in the classroom; these are:—

(1.) Model rag dolls, which are life size, and are stuffed with cotton-wool. They are unbreakable and very useful, but they are apt to get dirty, and of course cannot be washed. They cost 2s. 6d. or 3s.

(2.) Celluloid dolls, which are more expensive, costing from 10s. 6d. upwards. They can be washed, but are generally too rigid and not sufficiently jointed. It must be remembered that celluloid is a highly inflammable material.

(3.) Wooden model babies, as now used by the London County Council's teachers in their classes. These cost 10s. 6d. They are practically unbreak-

able, are jointed, and are washable. One would advise teachers, however, to enamel or paint them before washing. They are made in England.

(4.) Composition dolls, made in France and Germany. These can now be obtained without hair, and made to resemble a young infant. This is perhaps the most satisfactory type on the whole. They are exceedingly pretty, and so appeal to the girls, and are washable. The regulation size costs 10s. 6d.

The use of a "baby" doll must not be allowed to turn the lesson into a kind of game. The enthusiastic teacher will do her best to show the girls the real and national importance of the work, and also its nobility. If occasionally a friendly mother can be prevailed upon to bring her baby to school during this lesson, and the girls are allowed even to hold it, its beauty, frailty, and helplessness will appeal to them, and often arouse a deep and lasting interest. They should be taught to recognize that "of all created things, the loveliest and most divine are children."

CHAPTER II.

BABY'S FOOD.

THE life and health of every child in later years are almost invariably determined during the first few months of its existence.

Under these circumstances the care and feeding of babies becomes a very important thing, not only to the mother but to the nation as well.

Of the great factors in the maintenance of health *food* is the *most important*, as far as the baby is concerned. We all need good food to nourish and maintain the body, but in the case of children there is also the actual formation of new tissues—or, in other words, *growth*—to be considered. Teeth have to be formed, bones and muscles enlarged, brain developed, and so on.

If, then, baby is to grow, and be healthy and happy, it must be carefully and perfectly fed. It must have such food as will nourish, will promote growth, and will suit its immature digestion. Its food should also be pure, fresh, and free from the contamination of dirt or disease germs. Nature usually provides for baby its mother's milk, a ready and suitable food. This contains all the elements necessary for life and growth in the proper proportion

and in an easily digested form; it is not offered in large quantities or hard masses; indeed, for baby, there is no food to compare with it.

Every mother, then, who can nurse her baby, should consider it her duty as well as her pleasure to do so; and, provided she is reasonably healthy, looks after herself properly, and feeds the baby at regular intervals, there is no reason why her milk should not amply suffice. A baby fed naturally by its mother will often be strong and healthy amidst the most unfavourable surroundings, while even in the most hygienic and up-to-date nurseries the baby deprived of its mother's milk may be small and sickly.

The modern "massacre of the innocents" would soon cease if all mothers could and would feed their own babies. It is also a well-known fact that breast-fed babies very rarely suffer from rickets, diarrhœa, convulsions, or any of the troubles which usually beset the baby brought up by hand.

Regularity in Feeding.—Baby should be fed regularly, *by the clock*, every two hours during the day, and three times during the night for the first month of life. During the second month baby should be fed every three hours during the day, and twice during the night, and so on in proportion as the child grows older, till weaning takes place. *Baby must be fed regularly.* Irregularity in times of feeding causes indigestion and pain to the child and trouble for the mother. Regular habits, in this and other things, should be practised from the first, and, even if asleep, baby will soon learn to wake up of itself at regular intervals. The child should not be given

food merely because it cries; it often does this because it has had too much already. It may be thirsty, and should occasionally be given a little boiled, cool water, especially during teething time.

It must also be taught to take food *slowly*, each meal lasting about fifteen minutes. It must not be allowed to go to sleep during a meal. After the meal, baby should not be rocked or jigged about, but should be quietly placed in its cot or perambulator, on its *right side.*

The mother will be quite able to judge if baby is thriving on its food—(1) By increase in weight. A healthy baby usually weighs from seven to eight pounds at birth. Its weight should increase by about four ounces per week, or one pound per month. Baby should be weighed regularly, and the weight carefully noted on a home-made chart or notebook kept for the purpose. If it is losing weight, a doctor should be consulted at once. (2) Baby should look well and rosy, with fine firm flesh. (3) It will be ready for meals, and will be contented, generally crowing, kicking, and stretching. (4) The teeth will make their appearance at the proper time.

Artificial Feeding.—If the infant is not thriving upon breast milk, or if the mother through ill-health cannot nurse it, then artificial or hand feeding must be resorted to. Unfortunately this method of feeding is often unsatisfactory, even when properly carried out, and the doctor should be consulted and his advice adhered to.

The simplest substitute for the breast milk is cow's milk. This, however, being meant for a calf, differs very markedly from human milk, and it is at once

obvious that it must be modified before it can approach the human standard.

Cow's Milk and Human Milk.—The component parts of milk are:—

(1.) Fat, which is in the form of an emulsion or cream.

(2.) Sugar, called milk sugar, which is not so sweet as cane sugar and contains no starch.

(3.) Proteids. These are in the form of caseinogen, or curd-forming material, and lact-albumen, or milk albumen.

(4.) Mineral ash.

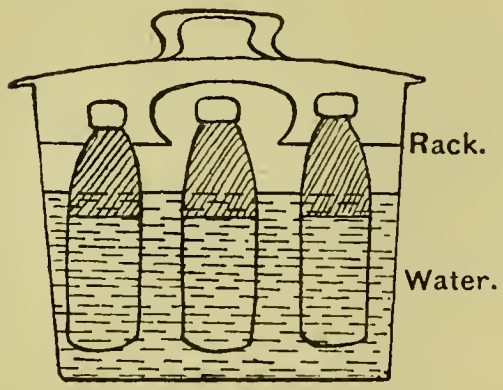
(5.) Water, about 87 per cent.

Comparing cow's milk and human milk, we find—(1) that the proteid called caseinogen is greatly in excess in cow's milk, while there is a great deficiency of milk albumen, a proteid quite distinct from casein and an essential nutritive element in human milk. (2.) The curd of cow's milk is also harder, and less easily digested, differing in this respect very markedly from the light flocculent curd of mother's milk. (3.) Cow's milk is not so sweet, containing less milk sugar than human milk. (4.) Unless the cow's milk is good, rich, *mixed* milk, it is often deficient in cream or fat, a most important element for the growing child. (5.) Mother's milk is a *living* food, fresh, alkaline, and sterile—that is, free from disease germs. By the time cow's milk reaches the purchaser it is often stale or sour, acid, and laden with dust and disease germs.

The first requisite is to get a pure milk supply. Milk from healthy cows is naturally free from disease germs, but in transit is frequently treated in such a negligent and often dirty manner—tumbled about in

railway wagons and exposed in dusty places—that it may convey sickness and death instead of health and strength. The ordinary milk of commerce is generally so dirty that it is only habit which enables us to use it at all.

It is quite possible to deliver milk in a perfectly pure and wholesome state. What is required are—(1) healthy cows in clean, well-ventilated sheds; (2) clean-handed and clean-clothed milkers; (3) a low temperature—that is, the milk must be rapidly cooled to keep it sterile; (4) perfect cleanliness of all utensils used; (5) sterilized and sealed delivery vessels.



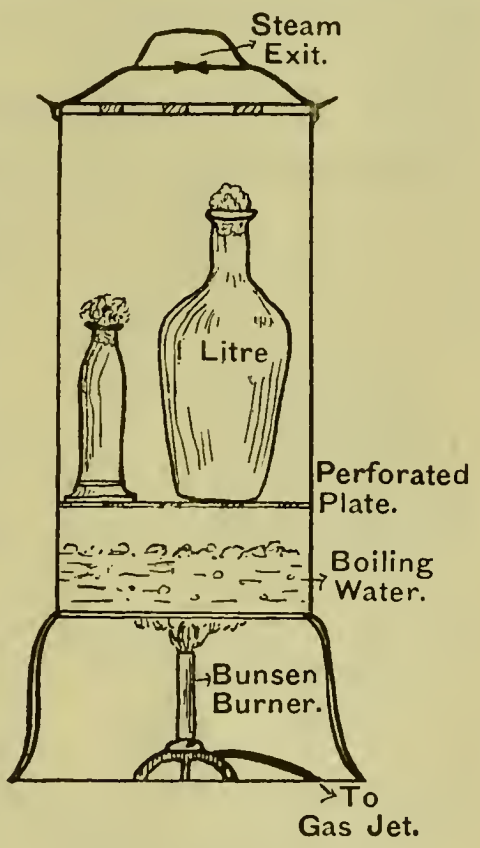
SOXHLET APPARATUS.

Under present circumstances the milk will have to be sterilized. This is a great pity, as it at once destroys the fine antiscorbutic property possessed by fresh milk and many other fresh foods. When we are deprived of this substance in our food for any length of time the disease known as scorbutus or scurvy is apt to occur, and in young children the terrible disease known as rickets. "It is estimated that a single day's milk from one healthy cow contains as much of such fresh substances as would be yielded from two or three lemons."

Boiling the Milk.—The milk may be sterilized by simple boiling, but to this there are objections. Boiling alters milk considerably, destroying the fresh substances and increasing the risk of scurvy. It also

tends to produce constipation. This, however, can be overcome by adding a small quantity of carbonate of magnesia occasionally to a bottle of milk. Boiling, however, kills most of the disease germs and spores which the milk may contain, and so renders it practically safe in this respect.

Sterilization.—Professor Soxhlet of Munich was one of the earliest to make experiments in sterilizing milk. His method was to plunge the milk in stoppered bottles into boiling water, and he found that, after thirty or forty minutes of this treatment, the milk kept good for a long time. His apparatus is shown, and all home-made utensils should be on the same principle.



DR. ROTCH'S APPARATUS.

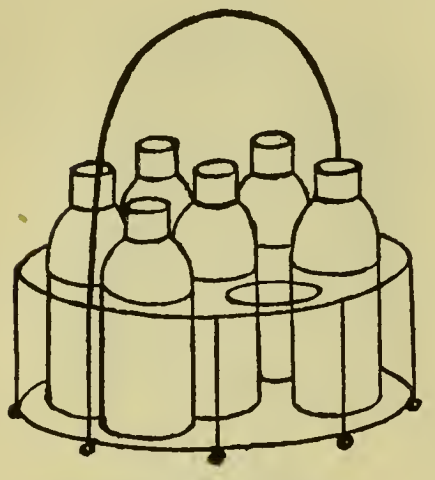
Dr. Rotch, an American authority, advocates a simple apparatus, which could be made by a local tinsmith for a small sum. It is simply a tin pail, about eight inches in diameter and about twenty inches deep. It is raised to allow a gas jet or night-light to stand under it. Four inches from the bottom is a movable shelf, with perforations, to hold the bottles. There is a steam-escape vent in the cover. Water is placed in the bottom and soon boils. The milk is then placed in bottles, and an indiarubber cap is placed over their mouths, or they may be stoppered with cotton wool.

The milk in the bottles is steamed for at least twenty minutes, and then cooled down quickly by placing in ice or in ice-cold water.

Application of Methods at Home.

(1.) For boiling, an ordinary saucepan may be used, but this method is not to be recommended if others are available.

(2.) Heating the milk in a double saucepan, such as is used for making custards, etc., or in a vessel standing in a saucepan of boiling water, the milk, of course, to be covered.



Cruet-shaped Frame.

(3.) Heating the milk in plugged or stoppered bottles in a saucepan. This is certainly the best method, and it would simplify matters if a local tinsmith can be got to make a cruet-shaped frame to hold the bottles, which can then be placed in an ordinary saucepan.

If no holder is used for lifting the bottles, these must not touch the bottom of the saucepan, but a folded cloth, or something similar, must be placed in the bottom. The bottles must not be too full, and may be stoppered with plugs of ordinary cotton wool, and *no cover* is needed for the saucepan. Cold water is then added to the height of the milk in the bottles. After treatment the bottles and their contents must be cooled down and the plugs not removed till the milk is required for use.

In hot weather especially the milk should be treated immediately on arrival. It should then be cooled by standing in cold water, carefully covered. A square of muslin or nainsook, weighted with heavy beads at the corners, forms an excellent home-made covering for milk, and keeps out dust, dirt, flies, and germs.

The storage place should be a clean, cool pantry or cellar, and *never a dusty hot kitchen.* Milk must never be placed near an open drain or sink, and never in contact with any strong-smelling food. Even under the very best conditions it is not desirable to keep fresh milk for any length of time.

CHAPTER III.

BABY'S FOOD—Continued.

"ALL whose experience entitles their opinions to consideration are agreed that some modification of fresh cow's milk is the only reliable substitute for breast-feeding" (Professor Emmet Holt).

Modification of Cow's Milk.— As we have already seen, cow's milk must be modified to make it more nearly like human milk before it can be regarded as a suitable food for the infant.

(1.) To reduce the curd-formimg product a diluent must be added. This may be plain boiled water, lime water, barley water, or oatmeal water.

Boiled water will dilute, but does not act upon the large hard curd.

Lime water is good, diluting and helping to soften the curd. It also tends to keep the milk sweet, but if constantly used it is constipating.

Barley water is certainly one of the best. It is not only a diluent, but breaks up the large curd, and being a mucilage suspends the particles, and prevents them from running together again.

In cases of constipation, *Oatmeal water* may be used in the same way with advantage. Recipes for making these diluents will be found on page 106.

(2.) By diluting the milk we lessen both the amount of sugar and fat in it. Sugar must therefore be added, and *milk* sugar should be used—never cane or beet sugar, which gives rise to fermentation, causing pain and flatulence to the child. Milk sugar may be purchased from any good chemist, and is quite inexpensive.

(3.) Unless the milk is very rich, or "top" milk is used, cream will have to be added to the diluted cow's milk.

This is an important point, as all medical authorities are agreed that fat plays a most important part in promoting the health and growth of the infant, and that the want of it leads to rickets and malnutrition. The cream used should be fresh and pure, and free from any preservative.

"Top" milk can be obtained by standing fresh milk in a cool place, protected from dust, for at least five hours, and then using the upper half only, into which most of the cream has risen. The lower portion may be used for ordinary cooking purposes.

Proportion of Diluent.—During the first three months, the proportions are generally one-third cow's milk to two-thirds barley water.

Specimen "Feed" for Baby up to One Month.

Milk, germ free . .	1 oz.
Barley Water . .	2 oz.
Cream, fresh . . .	1 teaspoonful.
Milk Sugar . . .	1½ teaspoonfuls.
Total Feed . .	3½ oz.

As the child grows older the amount of cow's milk will be gradually increased, and the milk sugar and fat also in proportion, due consideration being given to the increase in weight and progress of each individual baby.

Condensed Milk is sometimes used, and a baby may do well on it for a short time; but it has several drawbacks. It contains too much sugar, and that cane sugar, which we have already seen is not good for a baby. The ordinary brands contain little or no cream, and fat is one of the most important foods of infancy and childhood. A great authority on the health of children says: "In children who are fed upon a food deficient in fat, the bony structures are imperfect and slow of growth—in a word, deficiency of fat in the food is one of the chief factors in the production of the disease called rickets."

Ordinary brands of condensed milk are also poor in mineral salts, and these the baby and growing child need especially. To build up strong bones and good hard teeth, etc., salts of lime, magnesia, iron, and potash are wanted. Condensed milk, too, does not possess the antiscorbutic property of fresh milk, therefore the baby fed solely on it may develop scurvy.

If condensed milk be given it should have mixed with each feed a good proportion of fresh cream.

Dangers of Starchy Foods.— The common practice of giving boiled bread, cornflour, arrowroot, and common patent foods, most of which are simply starch, cannot be too severely condemned.

The baby at first secretes little or no saliva, and when this does appear, it is very poor in the

starch-digesting ferment. A baby, therefore, cannot digest starchy food, which, if given persistently, acts as an irritant to the stomach and intestines, setting up inflammation of these organs, often causing convulsions, diarrhœa, and death.

Until a baby is twelve months old it should have little or no starchy food. There is no starch in either cow's or human milk, but only milk sugar, which is, chemically speaking, digested starch. In this way Nature teaches us that *no starch* is needed by the baby, and that none can be digested.

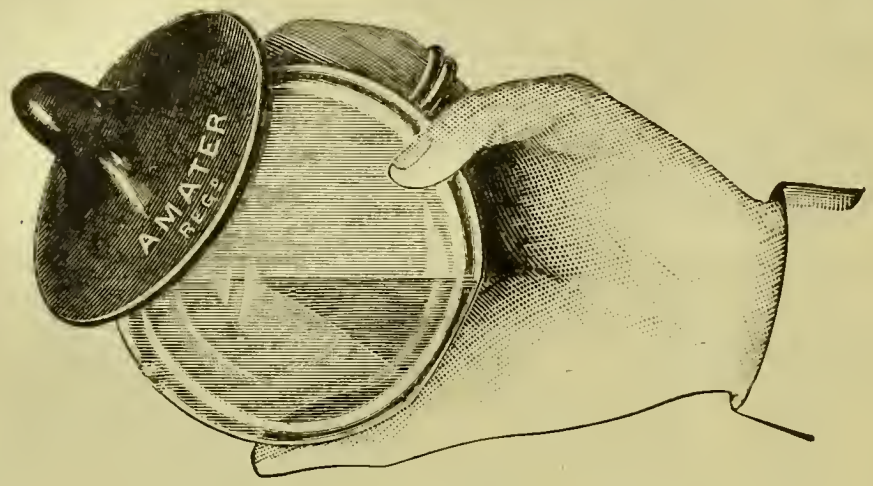
Feeding Bottles.— The old-fashioned bottles with long tubes — the sale of which is prohibited in France and several of the United States of America —are very dangerous, because the tubes cannot be properly cleaned, and may harbour sour milk and germs. The small brushes sold for the purpose of cleansing them are also to be avoided on account of the ease with which the bristles become detached, and are liable to stick in the child's throat.

These bottles are popular because the child using them does does not require to be taken up when fed, but the practice of leaving an infant to take nourishment by itself is an objectionable one. The child "bolts" the food, the bottle is quickly emptied, and air is sucked in, which gives rise to flatulence.

The bottle used should be (1) so shaped as to be easily cleansed, and (2) so that it must be held by mother or nurse while baby is being fed; (3) it should be graduated, and marked either in ounces or tablespoons; and (4) should have a good teat of pure rubber which must be directly attached to the bottle. Many of the bottles have a second opening at the extreme

end, fitted with a valve to regulate the flow of milk, which can be removed for cleaning when the bottle is empty. (See diagram of Allenbury bottle.)

One of the newest and best bottles is the "*Amater*,"



"AMATER" BOTTLE.

invented by Dr. W. J. Henson. This bottle most simulates and approaches the human breast. It is in two parts. The glass part is globular, and therefore quite easily cleaned, and is graduated up to eight ounces. This is covered by a wide rubber cap, out of which protrudes the teat. In sucking, the baby's mouth presses against this, instead of a hard substance, as in the case of an ordinary bottle. This bottle is quite easily cleaned, and the cap can also be turned inside out for cleaning.

ALLENBURY BOTTLE.

A good bottle with a second opening fitted with a valve is also shown. (Allenbury bottle.)

Two bottles are always necessary, and while one is in use, the other should be sweetening and cooling

in water to which salt or bicarbonate of soda has been added. Needless to say, both bottles and teats should be kept scrupulously clean and free from even a speck of stale milk. Both teat and bottles should be boiled from time to time. Any milk left over from one meal should never be used for the next. The food should be prepared anew each time.

If this modified cow's milk does not agree with baby after a fair trial, the doctor should be consulted as to which of the many patent foods should be tried. There are many of these patent foods on the market—some good, others, as already mentioned, being composed almost entirely of crude starch, and so quite unsuitable. It is best, therefore, to get skilled advice as to which will be best for the individual baby.

Method of Feeding.—The food should be given at a temperature of 99° F., or blood heat. If possible, a food thermometer should be used to ascertain the proper heat.

Care should be taken that the teat is drawing properly, and that the baby is neither getting the food too quickly, nor having difficulty in sucking. As with breast-fed babies, the meal should occupy at least fifteen minutes.

Position while Feeding.—The baby should be fed carefully on the lap, half sitting and half lying in the nurse's or mother's arms. It should not be allowed to go to sleep while feeding, and should never have food in its cot or perambulator. After the meal it may be raised into a sitting position for a few minutes, before being gently laid down in cot or perambulator.

Fresh-fruit Juice.—In towns where the milk is

invariably boiled or sterilized, and so loses its fresh property, or when condensed milk or patent foods are being used, baby must from the first have a little

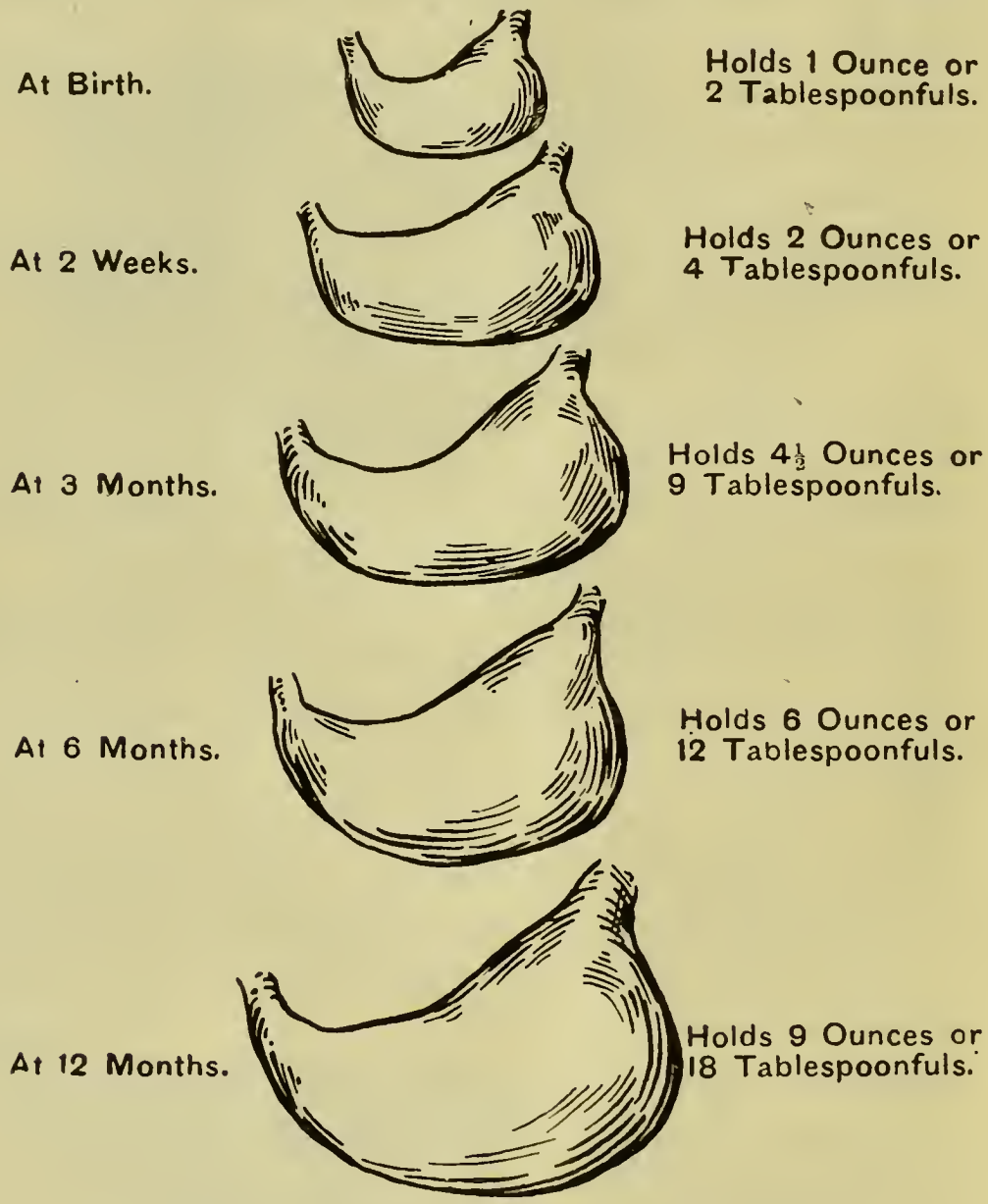


DIAGRAM SHOWING THE GROWTH OF THE STOMACH.

fresh-fruit juice daily to supply the antiscorbutic element. Orange, grape, or strawberry juice, well sweetened and strained through fine muslin, or prune juice, may be used.

Quantity.

For baby up to 3 months.—1 Small half-teaspoonful three times a day between meals.

„ from 3 to 8 „ 1 teaspoonful three times per day.

„ „ 8 „ 12 „ 2 teaspoonfuls twice a day before morning and afternoon feeds.

At ten months all babies, whether breast or bottle fed, should have the fresh-fruit juice added to their diet.

CHAPTER IV.

WEANING AND AFTER.

THE time for weaning depends on how baby is thriving, and is usually indicated by the appearance of the first teeth. This usually takes place about the ninth month, after which, as a rule, breast-feeding should not be continued. It is not wise, however, to wean baby during the very hot months, nor if suffering from diarrhœa or cutting a troublesome tooth.

If the child has been having one daily bottle-feed from an early age, the process is not troublesome; otherwise it will need great patience on the part of the nurse or mother.

If the child has been breast-fed entirely, one bottle-feed per day must be substituted, and so on gradually, till at ten months bottle-feeding has been quite substituted for the breast. Sometimes no bottle is required, a cup and spoon being used, and the child gradually taught to drink direct from the cup.

Some good patent food may now be introduced, such as Benger's, Allen and Hanbury's, or Savory and Moore's, though milk still forms the largest item in the diet up to two years. Before using

any food not ordered by the doctor, the mother should satisfy herself as to its exact composition, remembering that the baby can only digest and use a very small quantity of starchy food, and that many of those on the market contain *unaltered starch,* and are certain to give rise to *rickets and malnutrition.*

At twelve months old the bottle, if in use, should be quite discarded.

A drink of plain, pure water, should be given twice a day; this helps in keeping the bowels regular in action.

Diet at Eleven and Twelve Months.

Morning.—Milk, good patent food, cream.

Middle of the Day.—Lightly boiled or "coddled" fresh egg with stale bread crumbs, cup of milk *or* beef tea with bread crumbs, or good red gravy from joint with bread crumbs, fruit juice, custard.

Evening.—Milk and patent food.

Diet at Twelve to Eighteen Months.

Milk, patent food, cream, fruit juice, eggs boiled or coddled, well boiled fine oatmeal porridge, gravy with little well-mashed potato, beef tea or bovril with bread crumbs, thin plain biscuits.

Diet at Eighteen Months to Two Years.

Milk, eggs and thin bread and butter, cream, fruit juice, oatmeal or wheatmeal porridge, half ounce fresh red or white meat well pounded up,

or white fish with well-mashed potatoes or cauliflower, baked or stewed apples and cream, custard, light milk puddings, mashed banana and cream, flour of a baked potato well mashed with butter. If liked, a little good cocoa essence may be boiled with milk by way of a change, and a little good chocolate may now be given.

General Rules.

(1.) At two years old the child should have four meals a day, milk still forming a large proportion of the diet, either plain or in the form of cocoa.

(2.) The child must not have too much starchy food. All starchy milk puddings, etc., should be *very* well cooked.

(3.) Variety in the food is needed, so that the growing body gets all the constituents necessary. Variety also helps digestion.

(4.) Plenty of fat is needed, and can be given in the form of cream or butter. For this reason eggs should have a high place, and if possible an egg should be given daily.

(5.) The child must be taught from the first to chew well and eat slowly, and to take milk in *sips* rather than drink it.

(6.) No feeding between meals should ever be allowed. If sweets be given, they do no harm *directly* after meals.

(7.) Children under two years must never have tea, coffee, or alcoholic stimulants; no highly seasoned or spiced food; no pastry, pickles, cheese,

unripe fruit, or rich cake containing currants or raisins, etc.

(8.) A few good sweets, if given directly after meals, are not only permissible but desirable, as tending to add sugar and fat to the dietary. Suitable sweets are good home-made toffee, barley sugar, butter-scotch, and good plain chocolate. Avoid all highly coloured sweets, and those containing nuts, almonds, or cocoanut.

CHAPTER V.

BABY'S SLEEP.

DURING the first three months of its life the baby should spend most of its time in sleep,—generally speaking, about nineteen hours out of the twenty-four.

It should be remembered that for the baby and young child sleep is not only for rest, but also for growth.

If its bath and feeding are arranged for and given regularly, then its times for sleeping can also be regular.

When about *six months old* a healthy and well-trained baby should be put to sleep about 6.30 p.m. It should be taken up, fed, and changed about 10 p.m., and then ought to sleep on till 6 or 7 a.m.

During the day it ought to have two good sleeps, one during the morning and one in the afternoon, but should be kept up after four, so that it may sleep well at bedtime proper.

At and after *one year*, one good day sleep of about two hours will often serve.

As a general rule little children should have twelve hours' sleep at night, and the midday sleep should be insisted on up to school age—that is, till five years old.

Older children should have far more sleep than they have at present. The effect of insufficient sleep is seen not only in pale faces and stunted growth, but in irritable nervous systems and greater susceptibility to disease.

Baby's Cot or Cradle.—From the very first, baby should have its own separate bed or cot. There are several good reasons for this. (1.) The presence of the child with the mother often leads to too frequent feeding. (2.) From its position in the bed the child may breathe hot, impure air. (3.) The greatest danger is that of *suffocation* of the child by *overlaying*. Large numbers of babies die every year through being overlaid. In Germany there is a law which *compels* parents to provide a separate bed for the baby: it would be a very good thing if such a law could be enforced in this country. Both mother and child rest much better when sleeping apart.

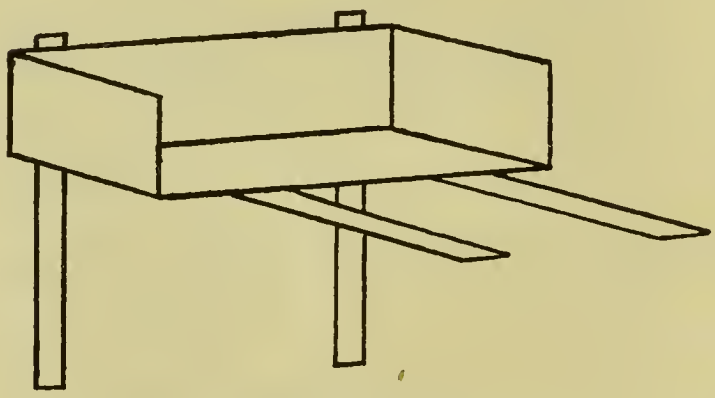
Bad Habits—such as rocking, carrying about, or, worse still, feeding when a meal is not due—should never be begun. Infants are veritable creatures of habit; good or bad habits are easily formed, but not at all easily broken off. To form good habits in baby is the first step in its moral training, and cannot be begun too soon. If baby be clean and dry, comfortable and warm, with warm feet, it should be laid in its cot and left, and it will soon get into the good habit of lying quiet till it goes off to sleep.

The kind of *cot* or *cradle* provided will depend on the social position of the parents, but in any case it should not have rockers.

An ideal cot is one made of white enamelled iron, raised on a stand, and prettily draped to match the baby's basket. Light and pretty wicker cots and cradles can be bought, and are quite inexpensive.

Where means are small, many clever devices are used for providing a separate bed for baby.

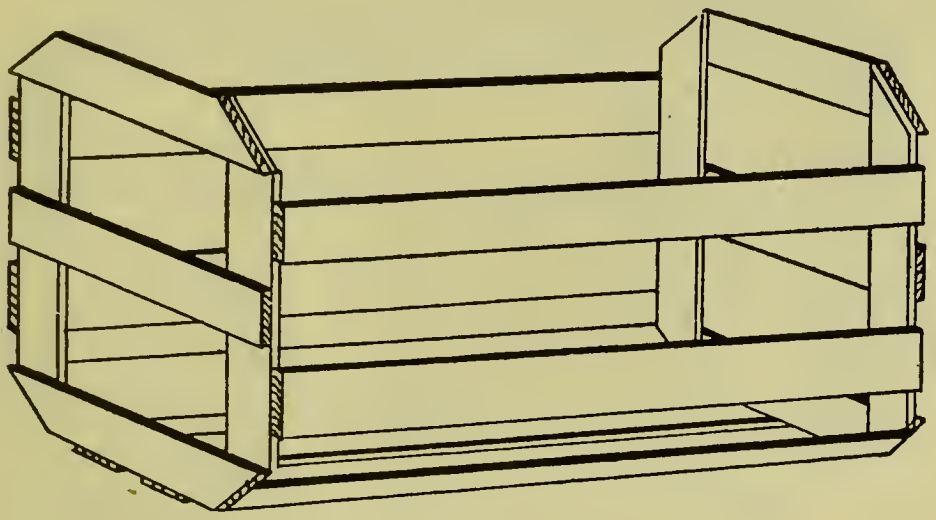
Soap-box Cot.—A large empty soap-box, costing probably about threepence, is got from a grocer. (1.) One side of the box is carefully knocked out and cut into two equal strips. (2.) These are nailed on to the bottom of the box, making thus two flat projecting pieces of wood, which can be pushed under the mattress of the mother's bed. (3.) Two similar strips, made from the lid, are nailed on the opposite side, and form two legs, by which the cot stands firmly on the floor. (See diagram.) Should the mother's be a spring bed, the two pieces for placing under the mattress will not be required; but they can be replaced by large holes, through which cord is passed, and strongly secured to the spring mattress. This, with the addition of the two legs or supports on the far side, will keep the cot in position. In this way the baby will be near the mother while not actually in the same bed.



Soap-box Cot.

Banana Crate Cradle.—One has seen a little baby

sleeping comfortably in one of these improvised cradles, which have no rockers and are light and most hygienic. They can be bought for a few pence, and are generally about 16 inches by 29 inches. Nail two flat pieces of wood underneath, at right angles to the cradle, to strengthen the bottom and also to prevent it turning over sideways. A simple method of decoration is to soak the wood with stain made from permanganate of potash, and then varnish over.

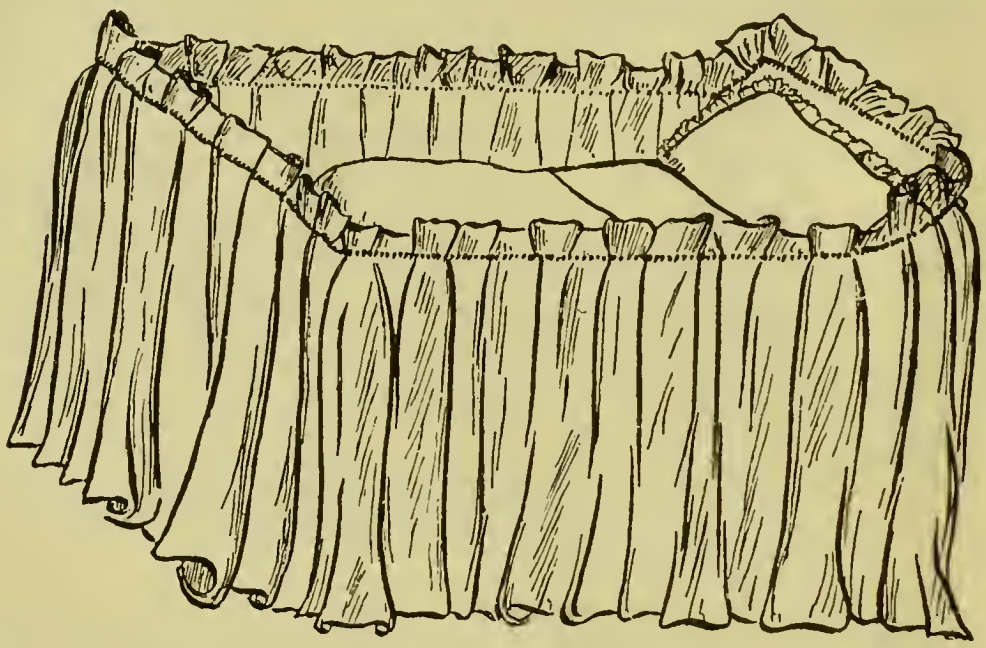


BANANA CRATE CRADLE.

A better plan, as the wood is very rough, is to line and drape the cradle. *To line* the cradle, $2\frac{1}{2}$ yards of unbleached calico 36 inches wide is needed. Place the calico inside, with the width of material running from head to foot of the cradle. Allow about three inches of calico to hang over each side, then fit in pieces the exact shape of each end of the crate, allowing an inch or two to hang over the edge. This forms a neat and easily washed lining.

To drape the cradle, cretonne, figured or plain

sateen, or any other cheap washable and pretty material, will be best. Two-and-three-quarter yards of 30-inch wide material will be needed. The drapery should be a large frill or valance, made to clear the ground, allowing a deeper piece for the raised head and foot and also a little heading to finish the top. This should be made with a running string, so that it can easily be washed and done up. This frill is stitched on to the calico



Draped Banana Crate.

of the lining, and transforms the crate into a very dainty looking cradle.

A piece of the sateen should be saved for a little coverlet, and frilled all round to match the drapery. The lining of the cradle should be fastened in by tapes passing round the wooden laths and fastening under the frill.

An ordinary clothes-basket, makes a very comfortable bed for baby, and being light is easily carried about, and placed in the open air.

A hammock bed, suitable for the afternoon nap, is quite easily made by turning a small strong table upside down, and tying a strong towel to each of the legs. This form of bed is now quite common in crêches and "Mother's Welcomes."

Unless standing high of itself, the cot used should be placed securely on a box or a couple of chairs, to avoid draughts near the floor.

Bedding.—Bedding should consist of a mattress, which should be of firm horse-hair, *never* of *feathers.* Where means do not permit of this a home-made mattress can be made of calico, like an ordinary pillow-case, and stuffed with fine shavings, wheat-chaff, or bran.

The one small pillow should be flat, and may be made of vegetable down, of which half a pound, costing fivepence, will serve. This should be covered with a frilled pillow-case.

Bedclothes.—These should be light in weight and warm, woollen blankets being best. Flannelette must *not* be used, as it is not warm enough and is, of course, highly inflammable.

"Cot" blankets can be bought, or old blankets can be cut down to the size required.

If an eider-down quilt is used it must be ventilated, and an easily washed home-made one is to be preferred.

A *mackintosh* sheet is generally laid across the mattress, but its place may be taken by paper. Strong brown paper, well oiled, makes an excellent mackintosh substitute, as does also the damp-proof pitched paper, which is sold by paperhangers at sixpence per piece of twelve yards. If paper is used, it can more often be renewed.

Over the mackintosh is often laid a large piece of good Turkish towelling, as a useful and cheap substitute for the under blanket, as it is more easily washed and can also be boiled. The bedclothes must not be heavy, and must never be turned back over the baby's chest, nor cover its head. They and the mattress and pillow should be aired daily, out of doors if possible, and if not, in front of an open window.

Needless to say, everything about baby's bed must be kept scrupulously clean and sweet, bedclothes often changed and washed, and nothing dried till it has been washed. The fewer draperies the better. When they are used, they must be of washable materials.

Flies.— Never allow flies to settle on baby when asleep; not only do they annoy and tease, but they may carry poison and infection. To avoid this, have a large square of mosquito netting or muslin to throw over the cot.

It should be weighted at the corners to keep it down, and also to prevent flies crawling under.

Sunshine and Good Air.—The room in which the cot stands should be sunny, to promote growth and health, and well ventilated, clean and free from flying dust.

To keep baby warm, especially when sleeping out of doors, which should be practised as often as weather and circumstances permit, a *hot-water bottle* is needed. An earthenware hot-water bottle of small size, suitable for a baby, can be bought in most towns for threepence, or a small stone bottle or hot brick may be substituted. This should be

covered with a flannel bag and placed in the cot, but not near enough to harm the child if too hot.

In putting baby to bed see that it is placed in a straight position, with the *head very slightly raised,* lay on the right side to begin with and see that *the ear* is not crumpled. During sleep turn it gently on the other side.

The cot should not stand directly in front of a window or any bright light. The eyes should be screened from too much light, to give calm, undisturbed sleep and to protect them from weakness.

While sleeping, if baby's mouth be open, it should be gently closed. It is of the greatest importance to educate baby to breathe properly—that is, through the nose and not by the mouth. If this is neglected the child may grow up a "mouth-breather," and may suffer from enlarged tonsils and frequent sore throat. If, in spite of care, a baby cannot breathe through the nose and always has the mouth open, there may be some obstruction, and a doctor should be consulted.

The baby is generally allowed to sleep in the cot or cradle till it is twelve months old, when a small bed or crib should be provided. The best cribs are of enamelled iron, with sides to let down in case of illness, and are furnished with a hair mattress and a moderately sized pillow.

Bedclothes should be light and warm, and the child should have been so trained that except in illness the mackintosh can now be dispensed with.

CHAPTER VI.

BABY'S CLOTHING.

"A little figure robed in white,
Spotless, serene, and pure."

ONE is thankful to be able to say that baby is dressed in a better and more common-sense way now than in the days of our grandmothers, when a mass of starched lace, frilling, and embroidery was thought to meet all requirements. The old style of low-necked and short-sleeved dresses, cold linen shirts, and tight bandages is now practically a thing of the past. There are still, however, babies who suffer from faults of clothing.

While all mothers desire to see baby prettily dressed, some fail to recognize that true beauty cannot exist without fitness. In the making or buying of a young child's clothing we must think of comfort, utility, and fitness before ornamentation.

The number of garments and the quality of the materials used will naturally vary with the social position of the mother, but the same principles must be considered by all alike.

(1.) **Baby's Clothing must be Warm**,—that is, must be made of a good non-conductor of heat, which does not permit heat or cold to pass readily through

it. Baby is extremely sensitive to changes of temperature. The large surfaces must be covered, and the internal organs protected, as a chill may cause serious illness. Arms, legs, neck, and chest must never be left bare. The greater the loss of heat the more heat will be required to be made by baby to make up for that loss; so its food, which should make it plump and rosy, is diverted into the making of heat instead.

(2.) **Clothing should also be Light, Absorbent, Porous, and Elastic.**—It should be light, because the child must not be burdened with any great weight, which may impede breathing and free movement, and consequently arrest growth and development. What weight there is should be equally distributed over the whole of the body, so that no one part suffers. Clothing should be porous, to allow of the free and proper action of the skin and permit of the passage of air. It should be absorbent, to take up moisture and perspiration; and elastic, so that it fits closely but not tightly.

The first, or long clothes, should be so made as to be *easily put on.* Babies have suffered much in the past from the numbers of times they had to be lifted and turned in order to adjust their little garments. These garments should be made in sets specially designed for dressing the infant quickly and comfortably without turning it at all, and without using dangerous pins or buttons. Garments so made are quite as pretty as those of the old style, and are much more easily made.

Wool meets all the requirements best of any material, serving the double purpose of keeping in

the heat of the body and protecting it from outside cold. It is light in weight, can be obtained in a porous form, and is absorbent and elastic. In our rather raw and changeable climate, wool should be used as the main material in clothing the baby. As the warmth should be equally distributed, it is best to use woollen material for all undergarments.

Never use Flannelette.—It is doubly dangerous: being only cotton "combed up," it is not warm enough, and each washing makes it thinner. It is also highly inflammable, and many babies' and children's lives have been sacrificed through its use.

Baby's clothing should be made *loose and roomy,* to allow both for the proper growth of the child and for shrinkage, which inevitably takes place even with the most careful washing.

Tight garments and heavy ones are dangerous, as they may restrict the circulation of the blood, so necessary to every part of the body during this first period of rapid growth, and may thus cause coldness of the extremities. A tight article of clothing may also impede breathing, and so prevent the growing lungs from expanding properly.

The clothing should be *light in colour,* and white is certainly the fittest and most dainty. Needless to say, garments must be kept *spotlessly clean.* All napkins, etc., must be changed as soon as soiled, and all should be washed with good naphtha soap, never with ordinary common soap or soda. No starched articles should be used, as these chafe the skin and cause needless pain.

If the undergarments are made at home, great care must be taken to make *small, neat seams,* which

should all be on the outside. This is to prevent roughening of the skin, and the accumulation of dirt or skin scales in the seams. For fastening, use soft, well-ironed tapes rather than buttons, which might press against and hurt the soft flesh.

Baby's First Clothes consist of :—

(1.) A *swathe* or *binder*, which is simply a strip of soft white flannel about 5 or 6 inches wide, by 30 inches long. The edges are left unbound. It should be wrapped *firmly* but *not tightly* round the little body, the extra thickness coming over the abdomen, at the side of which it is secured either by a few stitches or small safety-pins, put in *across* the binder. This is to support the navel and to keep the abdomen warm and comfortable. The flannel binder is replaced later by a knitted or warm woollen one.

(2.) *The Vest or Shirt.*—The best form of vest is woven of silk and wool. If means do not permit of this, the garment may be made at home of softest white flannel, or knitted with soft white wool. Below are given directions for knitting a simple first shirt or vest.

The garment, of whatever make, should be high-necked, and if for winter should have long sleeves. In summer short sleeves should be worn to protect the axilla. The vest should be double-breasted, and made to fasten over to the left side with tapes.

Directions for Making simple First Vest or Shirt with Long Sleeves.

Fine soft wool. 2 ounces.
Needles No. 11. Cost 5d.

(1.) Cast on 72 stitches; knit 3 plain, 3 purl, for 20 rows.

(2.) Knit plain for 50 rows.

(3.) Knit 20 stitches backwards and forwards plain for 30 rows.

(4.) Knit 32 stitches (for the back) backwards and forwards for 30 rows.

(5.) Now knit the 20 remaining stitches for 30 rows.

(6.) Knit *all* along the top, casting on 6 extra stitches for each shoulder, and knit 6 rows plain.

Long Flannel or Barracoat.

(7.) Knit 3 plain, wool over, and knit 2 together, and repeat to end of row.

(8.) Two rows plain and cast off.

(9.) Now pick up stitches down right front, and knit 6 plain rows. In 7 row knit to 4 stitches from neck end. Wool over and knit 2 together, and knit 2 plain.

(10.) Knit 5 rows plain and cast off.

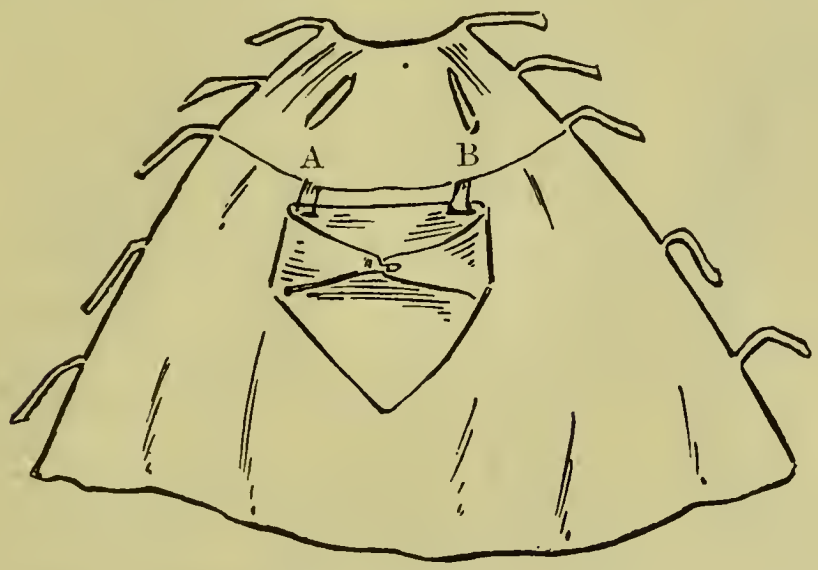
(11.) Do the same down the left front.

Sleeve.—Cast on 40 stitches; knit plain for 42 rows; then knit 2 plain, 2 purl, for 8 rows, cast off; join and sew into armhole. To finish, bébé ribbon should be threaded through the holes at neck to draw in and tie.

(3.) *The long flannel or barracoat* should be made of soft white flannel, usually taking about $1\frac{1}{4}$ yards. It is, as a rule, made about 30 inches

long, as are all the first *long* clothes. (See diagram.)

If sleeved vests be worn, sleeves are not necessary; but if baby has short-sleeved vests, long sleeves should be put in the barracoat. It should be cut with a bodice high in the neck and with shoulder seams. The newest form has little tabs attached at the union of the waist and skirt part, *inside* and towards the back, to which the pilch can be fastened with



LONG FLANNEL OPEN, SHOWING TABS A AND B AND PILCH.

safety-pins. This prevents the pilch and napkin from slipping down. (See diagram.)

The shirt is made long enough to come down over baby's feet, and is usually doubled up over them, and safety-pinned. The garment should be made double-breasted and to fasten over to the left side with tapes.

(4.) *The day gown or robe* is usually made about 30 inches long. Various materials may be used. For summer, fine cambric, nainsook, lawn, washing silk, or, if means are straitened, a cotton cellular material costing about 8d. per yard, answers well.

It is both pretty and a good washer. For winter, fine woollen material, such as nun's veiling, fine white wincey, cashmere, or washing silk should be used. The making or buying of this garment leaves much scope for individual taste. It may, if of woollen material, be embroidered in silk on yoke, sleeves, and skirt. If of silk, it may be smocked; or if of any of the summer materials it may be embroidered, etc. The first day gowns should open in front, and the fastening may be hidden under a plain or embroidered panel.

BABY'S HEAD FLANNEL.

Napkins are best made of soft Turkish towelling, though some mothers still prefer the older fashioned diaper. Both wash and wear well, and are comfortable for baby.

The pilch is a triangular piece of flannel usually cut from a 27-inch square. The edge is usually button-holed or left raw. A cheap flannel will serve, as the pilch needs frequent renewals. Mackintosh material must on no account be used, or the child's skin may suffer.

A head flannel is necessary, to protect the baby when it is being taken from one room to another. This may be as simple or as elaborate as the mother wishes. It is usually made from a 30 to 36 inch square of fine French flannel; and the edges may be simply bound or worked in button-hole stitch. One corner of the square is drawn up to form a kind of hood. A small soft

woollen shawl may take the place of the head flannel.

Woollen bootees should be roomy and warm. They are easily made at home, and can be either knitted or crocheted.

Bibs are made from all sorts of materials, from the elaborately trimmed silk and lace affair down to the home-made ones of soft Turkish towelling. These are really very good, being soft, cheap, and absorbent.

Dressing the Baby.—With all the garments made to open down the front, dressing becomes a comparatively easy matter. They must all be made to fit one into another, and laid flat in proper order, ready either on the lap, on the bed, or on a dressing-table. After washing and drying, baby is then laid on the prepared clothes, and without turning at all is soon dressed. In very cold weather, or if baby is not well, a hot-water bottle may be laid on the clothes to warm them.

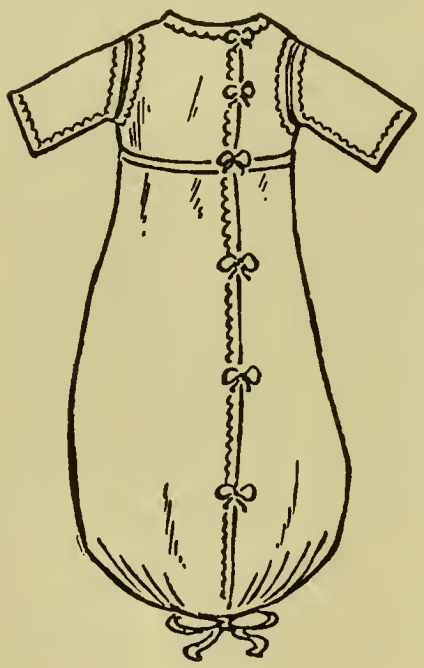
Where means are limited, a *good dressing-table for baby* can be easily made at home from a new clean packing-case. It should be about 38 inches high, 32 inches long, 22 inches wide, with a shelf 12 inches from the top boxed in on three sides. The toilet articles can be kept there, on the shelf, free from dust and ready for use. The child is lifted to the top of the table, which is padded with a blanket; there it can be dressed with ease and rapidity.

Night Clothing.—No clothing should be worn at night that has been in use during the day. A binder, a long flannel, and a nightgown are usually worn.

Nightgown.—The material used for this will depend on the season of the year, but even in

summer, it is often advisable to have this garment made of some form of woollen, such as nun's veiling. In winter, natural flannel or fine wincey is very serviceable.

About $2\frac{1}{4}$ yards of 36-inch wide material is wanted. The garment is made quite plainly, and at the hem may be finished with a draw-string to pull up and so form a sleeping-bag; or the back may be made 6 inches longer than the front, and the extra length turned over and buttoned on to the front. (See diagram.) In both cases, baby's feet and legs are not left unprotected should the bedclothes be kicked off or disarranged during the night. When the child is a little older, a sleeping suit is excellent for the same reason. This is usually a long combination garment of woven wool, or woollen material, with or without feet.



NIGHTGOWN.

Hints on Washing Baby's Clothes.

White flannels.—If these are to be kept in good condition they need special treatment. Avoid rubbing and twisting, the use of strong alkalis, and extremes of temperature in washing and drying. The proper way is to wash and dry them as quickly as possible, doing one at a time.

First prepare some soap jelly. Shred $\frac{1}{4}$ lb. of

good pale soap into a saucepan, cover with boiling water, use gentle heat till it has become a pale golden liquid.

Next prepare 4 basins of water at a uniform temperature of 99° F. Into the first two put 1 tablespoonful of liquid ammonia to soften the water, and some of the dissolved soap to make a lather.

Put one woollen garment into the first water, knead and squeeze it till clean, then turn out and do the same in the second water, the garment now being turned wrong side out. When clean, rinse in the two remaining waters, adding 1 tablespoonful of ammonia to the last one. Should the rinsing waters become soapy, they must be changed, as this is bad both for the flannels and for the baby's skin. Fold the garment and put through the wringer, and get as much water out as possible. Shake well to raise the woolly fibres, and dry quickly either out of doors if the day be fine, or before a slow fire. When nearly dry, fold and press with a cool iron on the wrong side, then air very thoroughly.

Coloured Flannels.—Omit the ammonia, and use vinegar, 1 tablespoonful to the gallon of water, in the last rinsing water.

If flannels are properly done in this way they will remain soft, elastic, and unshrunken.

CHAPTER VII.

BABY'S SHORT CLOTHES.

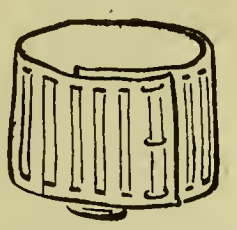
THE time for "shortening" or "short-coating" baby is usually determined by the health of the child, and the season of the year. If baby is healthy and thriving, and the weather is suitable, the long clothes may be replaced by short ones about the twelfth week. Should baby be ailing, or the weather cold, then shortening had better be delayed for a week or two.

The principles which have been already laid down in other chapters with reference to baby's clothing must of course be adhered to in preparing or purchasing the short clothing. The clothes should be *loose* and *warm, without being heavy,* and the warmth and weight should be equally distributed over the body, care being taken to see that the extremities are kept warm. The sleeves should still be worn long and the necks high, on account of the position of the lungs, the apices or points of which rise above the collar-bone on each side, and which also extend down under the armpits.

With the discontinuation of the long clothes, extra care must be taken that the lower part of the body, especially over the bowels, is kept protected against

chills, or distressing illness may result. The undergarments should still be of wool, which is warm, light, soft, and absorbent; indeed, it is almost impossible to overestimate the importance of warm woollen underclothing, more especially if any marked disease tendency, such as rickets, struma, or anæmia, or any other constitutional delicacy, has begun to show itself.

It is far better, if means are limited, to sacrifice some of the smartness in material or trimming of the outer garments and have good underclothing for the young and growing baby. Illness may be avoided, and even life itself may be saved, by the wearing of some sort of woollen garment next the skin. Where circumstances permit, there is nothing so suitable as undergarments made of natural wool; otherwise, woven woollens or flannel may be used.



Binder with Tab.

As already stated, *flannelette should be avoided*, as not giving enough protection from cold and as being highly inflammable.

Shortening should be gradual, the first short clothes reaching about four inches below the feet, as baby should still be carried about mostly in the recumbent position.

Binders or Belts.—The flannel swathe should now be replaced by a knitted or woven binder or belt to reach from the hips well up over the abdomen, with a little tab to which the napkin can be safety-pinned. This will help to keep off diarrhœa, so often caused by chill to the bowels.

Stays are generally made of two layers of quilted

flannel, which should be large enough to reach from the hips to the collar-bone. The armholes and edges must be bound with soft flannel bindings. Very comfortable stays for baby may be worked in close double crochet, 2 ounces of three-ply fingering wool being needed and a No. 9 hook. The crochet is bound with soft ribbon, which is also used for the shoulder-straps.

Petticoats.—These are usually two in number: a flannel or woollen one and an upper, which is generally of nainsook or calico in summer or of some woollen material in winter.

Flannel Petticoats.—These can be made either long or short. With the short variety the skirt of the garment is set into a calico band to button on to the lower part of the stays. A better way for winter wear is to attach the skirt to a high-necked bodice with sleeves reaching to the elbow.

The petticoats should be tucked to allow of lengthening to suit the growth of baby, or to counteract the effects of shrinkage in washing, and the lower edge may be trimmed with flannel embroidery or coarse lace.

Upper Petticoats may be made of cambric, nainsook, or long cloth. They may be made "princess" fashion or may consist of a skirt inserted into a sleeveless bodice. When made up, the skirt should measure about fourteen inches long.

Drawers are a much better protection for baby than petticoats, as when lying down the latter may be kicked back, and baby's leg exposed to the cold. If drawers are worn a second petticoat may often be dispensed with. They should be made of soft flannel

or hand-knitted, and are generally worn over the napkin. Flannel or calico drawers are generally set into a band, which should be made to button on to the bodice or stays.

The leg part, which is merely a curve, is finished with an ordinary hem, to which an edging may be sewn.

Knitted Drawers can be made at home at the small cost of 6d.

1½ ounces of 4-ply wool. 1 pair of thick steel needles. Cast on 76 stitches.

A. Knit 5 rows of 2 purl and 2 plain.

6th row. Plain.

7th row.* Knit 1. Make 1. Knit 2 together.* Repeat from * to * to end of row.

8th row. Plain.

Knit 6 rows of 2 purl and 2 plain.

Continue knitting 38 rows plain.

Then continue knitting plain, but at the beginning of each row (2nd stitch) decrease for 8 rows 1 stitch.

Next continue knitting plain, but decrease 2 stitches each needle until there are 32 stitches left.

B. Knit 2 rows plain.

Then increase at the same rate as the decreasing until you get 76 stitches again.

Continue knitting until the second half corresponds with the 1st (A to B).

N.B.—For the second half, read the directions upwards from B to A, but *increase* instead of decreasing.

Now double over, and sew up the straight sides. Work narrow edging round leg openings. Run washing ribbon or chain through the waist holes.

Stockings and Shoes.—Stockings should always be long, and those worn in winter should be of three-quarter length. As before noted, the practice of leaving the legs of tiny children bare, while the rest of the body is warmly clothed, is illogical and bad, and often leads to serious illness.

Only when baby is beginning to "feel its feet," as it is called, does it really need shoes, and then the only purpose of the shoe is to protect the foot from pins, or similar objects which might injure the child.

Rigid shoes must *not* be used, or deformities of the feet may be the result. The first shoes should be of the softest glacé or morocco kid. They should be very wide in the soles, without heels, and have very fully cut uppers, to allow of the spreading of the toes.

Frock or Dress.—With the passing of time, perhaps no article for baby's wear shows so much change as does the short frock.

Some years ago it was made with a bodice and full skirt separately, these being then joined together at the waist, and always with low neck and short-puffed sleeves.

This has been wisely superseded by the "overall" type of frock—that is, a long skirt suspended from a shoulder yoke. This also makes for economy, as by this fashion the long and often expensive monthly gowns may be used up. This can be done by extra tucking, or a piece may be cut out just above the tucks, an extra one being made to hide the join. Even if the yoke be too small, or showing signs of wear, a new yoke may be added to the skirt. These little frocks are easily made at home, in nun's

veiling—wincey or cashmere for winter, or cambric print or nainsook for summer wear.

To Make a Frock of the "Overall" Type.—First, there is the skirt part, which consists of back and front practically alike, except that the back has a slit for the placket.

The skirt should represent $\frac{5}{8}$ of the length of the garment, which will vary in size with baby's age and size.

Measurements up to one year are :—

Back and front, 18 by 27 inches.

Sleeve, 12 by 14 inches.

Yoke, 13 by 9 inches.

Chest measurement about 8 inches.

These garments are quite suitable for baby until its first efforts to walk begin.

Nightdresses.—The long ones should be used till the child is about two years old, when they should give place to sleeping suits, made all in one, to button up the back. This may be supplemented in winter by a long woven undervest, as children often lie with the upper part of the chest and arms uncovered.

CHAPTER VIII.

BABY'S OUTDOOR CLOTHING.

If baby is to derive benefit and not harm from its outing it must be suitably clothed.

When making or purchasing outdoor clothes for baby, the great point to be remembered is that these are required for *protection* from cold and chills in winter, and from the sun's rays in summer. Practical utility must not be sacrificed to mere prettiness or show. The first outdoor garment of convention is usually a long cloak, with hood to match. If this, which is really more ornamental than useful, is worn, the cape should be deep enough to cover the child's arms, and a little woollen jacket with sleeves must always be worn underneath.

Instead of the long cloak with cape a large soft *white woollen shawl* is more often used nowadays, and is really much warmer and more comfortable. It can be made at home, either knitted or crocheted, and is therefore less expensive and less weighty than the often elaborately trimmed cloak. It is much more practical and useful also.

The *woollen jacket* with long sleeves is a very necessary little garment, and should always be worn when the child is taken out. It should be large and

roomy, and can be made of soft French flannel, or, better still, hand-knitted or crocheted.

Directions for Knitting a Baby's Woollen Jacket.

2 oz. Beehive Shetland Wool.

1 pair bone needles No. 13.

Right front.—Cast on 57 stitches.

Knit 2 rows plain and 1 row purl.

1st pattern row, slip 1, knit 1,* knit 2 together three times, make 1 and knit 1 five times; make 1 and knit 2 together three times, knit 1.* Repeat from * to *, and there will be 1 to knit at end of row.

2nd row, plain.

3rd row, plain.

4th row, purl.

Repeat last 4 rows (that is, pattern rows) 23 times, then cast off 20 at beginning of next row (for neck-band). Knit 1, and repeat the pattern for 6 repeats. Cast off all.

Left front.—Cast on 57 stitches, and knit same as right front, but cast off 20 stitches in the last row of the 24th pattern. Continue on remaining 37 stitches (from 1st pattern row) for 6 repeats. Cast off.

Back.—Cast on 93 patterns, and knit as for front for 30 patterns. Cast off.

Sleeves.—Cast on 76. Knit in ribbing 2 plain, 2 purl for 20 rows. Then

21st row, slip 1, knit 2,* make 1, knit 2 together, knit 1.* Repeat from * to *.

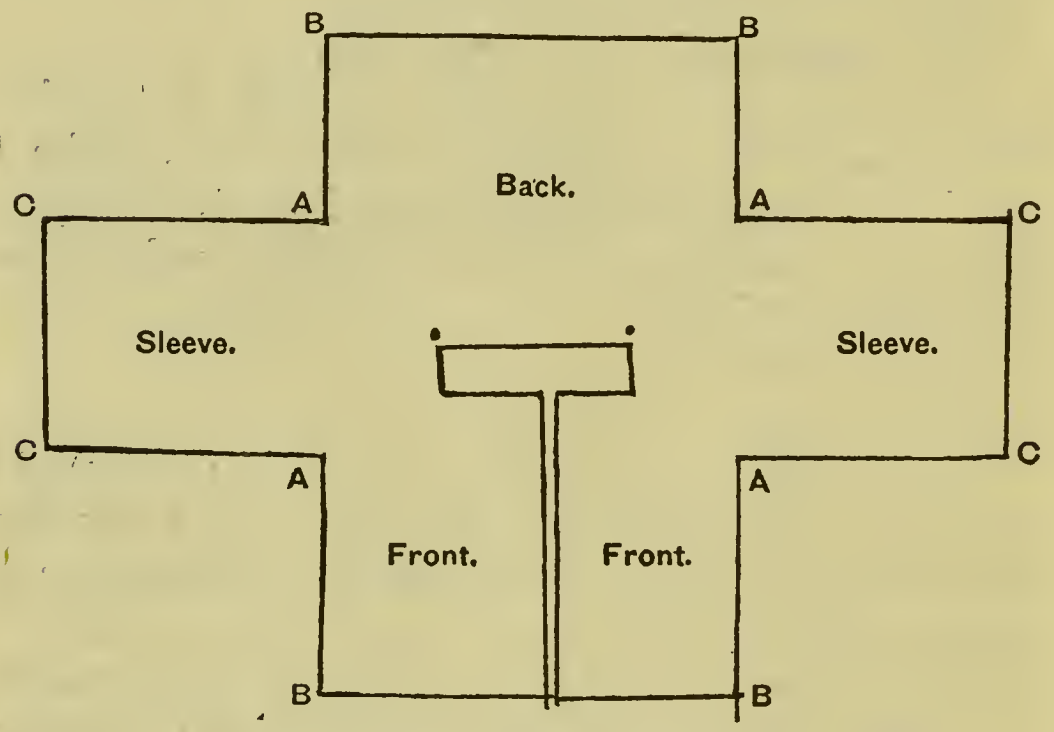
22nd row, purl.

Then knit in patterns for 18 repeats. Cast off. Both sleeves are knitted alike.

How to Join the Pieces.—(See diagram.) (1) Place A to A, B to B, and C to C down each side. (2) Sew from A to B, and from A to C.

After sewing up, crochet an edging round the neck and fronts, and finish off with bébé ribbon or a crochet string.

When baby is short-coated the long cloak or shawl



Baby's Jacket—How to Join the Pieces.

gives place to the pelisse, a shorter garment with sleeves, and often finished with a cape or large collar.

To make the pelisse, about 2½ yards of 44-inch wide material is needed, and patterns are easily obtained through any ladies' paper.

During very warm mornings or for sitting in the garden a little matinée coat may sometimes be worn. This pretty and handy little garment can quite easily be made at home from ¾ yards of French flannel, or such suitable material, folded across and cut Magyar

fashion. (See diagram.) It is finished with bébé ribbon, and can simply be laid round the child's shoulders and tied afterwards.

MATINÉE COAT.

When baby begins to walk, the pelisse is superseded by a little *walking coat*, sleeved, and generally with a large collar or short cape. This garment can be made up in any kind of light woollen stuff, such as cashmere cream cloth or alpaca, and requires $2\frac{1}{2}$ to 3 yards of 44-inch wide material, according to the child's age.

For a tiny girl a very useful garment is a Red Riding-hood cape. In soft scarlet ripple cloth or good flannel, with hood complete, it is at once pretty and cosy, and is made in very much the same way as the head flannel. (See chapter on "Baby's Clothing.")

For an older baby boy a very comfortable outdoor garment is a knitted woollen coat. The little hands should be protected by soft woollen "baby" *gloves,* without separate fingers, and as baby is apt to shake them off they should be secured with a safety-pin to the sleeve of the coat or pelisse.

KNITTED OVERALL.

The legs and abdomen should be well protected, and this is best done by putting on a combination garment or *overall.* This is generally of white or natural wool, knitted or woven, and is really bootees, stockings,

and drawers all in one. It must be roomy and elastic, and the upper part goes over napkin and pilch and keeps the lower part of the body comfortable and warm.

Baby's Headgear.—In choosing or making this it should be remembered that the anterior fontanelle, or space between the bones of the skull, does not properly close till the baby is nearly eighteen months old; also, that the bones of the skull are extremely thin. The head therefore needs protection, not so much from cold (though it is important that the little ears are kept warm when outside) as from the sun's rays.

Dainty Hoods for Baby.

Then, too, baby's *eyes* are in a state of active development, and also *need protection from glare.* Warm, soft, and cosy hoods should be worn in winter, and light, shady hats in summer. Dainty little hoods may be fashioned at home out of almost any kind of soft material, and may be either of the "French" or "Dutch" style. For baby boys light felt or pith hats are good. These being light, shady, and soft, are very comfortable when the child is lying in his perambulator, and protect the eyes and the front of the head from the sun.

The headgear chosen should on no account have any flapping frills or drapery in front. These are very irritating to baby's eyes, and are said to be one cause of strabismus, or squint, in young children. Hats and hoods should be tied on with soft washing ribbon or silk; on no account should elastic be used. No wires or hard material must be employed in making baby's millinery, and starch must not be used in laundering it.

Directions for Making a pretty simple Hood for a Girl Baby. First Size.

Petticoat or other thick wool, 2 oz. Needles No. 9.

(1.) Cast on 60 stitches, knit 1, purl 1 for 40 rows; cast off 21 stitches at each end.

(2.) Continue knitting the 18 middle stitches for 28 rows; cast off, sew up the sides of the back.

(3.) Turn back a piece of the front, then take up stitches for the neck, knit 1, wool before. Knit 2 together, repeat this to end of row to make holes for ribbon, then knit 1, purl 1 for 6 rows. Cast off.

(4.) Finish with crochet edge on the turn-back in front, and also round the neck; run a ribbon through, and tie at the top of the head.

In choosing hats for baby boys, care should be taken not to have them heavy or ill-fitting. If so, they may rest on the ears and push them away from the head, giving rise to the unsightly outstanding ears so dreaded by careful mothers.

Veils are required in cold or wintry weather, and are generally of Shetland wool open work. On very dusty days a fine muslin veil should be used.

CHAPTER IX.

VACCINATION.

THE law of the land requires that baby be efficiently vaccinated before it is six months old. About three months, however, is considered by most authorities to be the best time; and, at any rate, vaccination should be well over before teething begins. It should also be known that the younger the child the less likely is it to be disturbed by the after-effects.

The Vaccination Act of 1898 did great service to vaccination by introducing the use of glycerinated calf lymph instead of human. Previous to that date, vaccination was generally "arm to arm"—that is, the vaccine from the ripe pustule of a healthy vaccinated child was used to vaccinate others.

This was often objected to, and brought, no doubt, some discredit upon vaccination.

In these days lymph from carefully selected and vaccinated calves is used, and by the thorough and intimate admixture of glycerine, and by storing the lymph under conditions which prevent the access of light and air, Dr. Copeman believes that any foreign matters, such as disease germs, are destroyed, and the vaccine organism *only* left.

The Act of 1898 also enabled greater care on the

part of the mother or nurse to be taken by abolishing public vaccination stations, and ordering the public vaccinator to operate on the child at home, and inspect there on the eighth day.

This Act also permits the father of the child to claim exemption from the duty. He is required to appear before a magistrate, and there declare that he "conscientiously disapproves" of infant vaccination.

Vaccination may be *postponed* on production of a doctor's certificate stating that the baby is not in a fit state of health for the operation. This is usually done if baby is suffering from any skin disease, eczema, or diarrhœa, or is weak from a recent illness.

Mode and Progress.—It is usual to vaccinate in *four* places high up on the arm, taking care that the insertions are so far apart as to prevent them running together and forming a large sore. If the operation be successful, red pimples will begin to show about the third day. These turn into vesicles, or watery pimples; the fluid in them then turns cloudy and thickens, and becomes pustular about the eighth day. This is generally the time when the baby suffers most.

Locally there will be inflammation, uneasiness, or even pain; and *constitutionally* there may be feverishness, restlessness, and want of appetite.

About the tenth or eleventh day the pustules burst and discharge their contents; then a scab forms, and, if not interfered with, falls off about the twentieth day, leaving a white depressed scar. An arm which is not soundly healed up by the twenty-first day should be referred to the doctor.

Possible Dangers.—The only really great danger arising from vaccination is that common to all wounds unless carefully guarded against—namely, septic or dirt poisoning. With strict cleanliness, suitable food, and care no danger need be apprehended.

Precautions.—The mother or nurse should see that the arm is absolutely clean to begin with, and for fear the sleeve might ruffle the wound, it should either be slit up or removed altogether for the time being.

HOME DRESSING OF VACCINATION.

The little operation of vaccinating should be performed in a clean room free from dust. The arm should be allowed to remain uncovered for a few minutes to allow of the drying of the lymph.

Some doctors paint the sites of the vaccination with an impervious solution, such as zinc gelatine, which forms a protective covering.

The greatest care should be taken to prevent the arm being knocked, or the doctor's dressing coming off, and the arm must be washed only above and below the site.

The best home dressing is antiseptic or sterilized gauze. With perfectly clean hands apply a piece of the gauze lightly over the spots, then wind a gauze bandage once or twice round the arm. To keep all in place, put a strip of adhesive plaster about 1 inch wide and 5 inches long lengthwise along the arm, over the centre of the bandage.

A rash may appear within a few days after vaccination, but is often only of a temporary nature.

Care must be taken that the baby is suitably fed, and the stomach and bowels well regulated. Great attention must be paid to strict cleanliness.

Effects and Value of Vaccination.—One cannot do better than quote the words of the Royal Commissioners on Vaccination in their final report, dated August 1896 :—

"(1.) That vaccination diminishes the liability to be attacked by smallpox.

"(2.) That it modifies the character of the disease and renders it less fatal, or of a milder and less severe type.

"(3.) That the protection it affords against attacks of the disease is greatest during the years immediately succeeding the operation of vaccination.

"(4.) Revaccination restores the protection which lapse of time has diminished.

"(5.) That the beneficial effects of vaccination are most experienced by those in whose case it has been most thorough. We think it may fairly be concluded that where the vaccine matter is inserted in three or four places it is more effectual than when introduced into one or two places only."

It is to systematic and compulsory vaccination and revaccination at twelve years of age that Germany owes her immunity from smallpox. The fact that the carrying out of public vaccination is at present in the hands of the Poor Law authorities has stimulated the prejudice against it. As it is a matter affecting not only individuals but the public health generally, perhaps it would be better were it entrusted to the Public Health authorities.

CHAPTER X.

TEETHING.

THE time when the teeth make their appearance varies somewhat in different babies; but, as a general rule, the first tooth is usually cut about the seventh month, and a healthy child, about twenty-six months old, should possess its complement of "milk" teeth without their coming having given rise to much trouble.

Bottle-fed babies are generally later in cutting their teeth than those fed naturally.

The deciduous, or "milk" teeth as they are often called, are *twenty* in number, and form the temporary set, to be replaced later by the permanent teeth.

The Milk Teeth consist of:—

4 incisors, or front teeth. 2 canines, or "eye" teeth. 4 molars, or double teeth.	In upper and lower jaw.

Order of Cutting.—The first to appear are usually the two central incisors in the lower jaw, and then the same two in the upper jaw.

6	and	7	months.	—Central incisors in lower jaw.
7	„	8	„	„ „ „ upper jaw.
8	„	9	„	Lateral incisors.
12	to	16	„	First molars.
	18		„	Canines.
22	to	26	„	Second molars.

If baby is suffering from any acute illness, the cutting of the teeth is usually delayed. Rickets is the greatest cause of late teething; and when the teeth do come, they are generally soft and decay early.

Signs and Troubles of Teething.—Most healthy babies cut their teeth with very little trouble, though the delicate or nervous may suffer severely through it. The first signs are usually fretfulness and sleeplessness. The gums become hot, swollen, and painful, with a great deal of dribbling of saliva. There may also be slight digestive trouble, such as flatulence, and slight vomiting, and also some amount of feverishness. The bowels often act irregularly, frequently becoming very loose. Some babies get an attack of eczema, bronchitis, or diarrhœa with the cutting of each tooth. Indeed, the whole period is a critical one generally, as being an age of rapid growth and great excitability of the immature nervous system.

Convulsions are feared; though not very common, they do occur, especially in badly-fed babies, and in conjunction with rickets. (See chapter on "Baby's Ailments.")

Management during Teething.—The general health and welfare should be carefully considered, the child properly fed, and the stomach and bowels regulated.

Soothing syrups or teething powders should *never* be given. They all contain opium in one form or other, and are therefore extremely dangerous, and cause the death of many babies every year. A dose of some simple cooling or other medicine, such as castor oil or fluid magnesia, will often help; but nothing else should be given without proper medical advice.

Great care must be taken to see that, while rooms are well ventilated, the baby, especially if feverish, does not get a chill, which may lead to bronchitis. Excessive dribbling of saliva, without care, may also cause a chill, through the baby's clothes over the chest becoming saturated. A bib of mackintosh, or jaconet, should be worn under the ordinary bib, and both often changed. (See chapter on "Baby's Clothing.")

A little looseness of the bowels is not inconsistent with health during this time, but *persistent diarrhœa* should be reported to the doctor.

For feverish restlessness, a hot bath at night may occasionally be given to help to induce sleep.

Local Treatment.—The hot, swollen, and aching gums may sometimes be relieved by gentle rubbing with a perfectly clean finger dipped in a mouth-wash of lemon juice and water, or equal parts of lemon juice and glycerine. The finger may be covered with a clean soft rag, or fold of clean handkerchief dipped in warm water. Frequent drinks of cold, boiled water should be given throughout the whole period of teething. It is considered a mistake to lance the gums unless the tooth is nearly through, as the resulting scar is hard, and really prevents the eruption of the tooth

Structure of the Teeth.—A typical tooth is divided into three parts—(1) crown, (2) neck, (3) root, or fang. The crown or body of the tooth is covered with a white, hard, glistening material called enamel. The neck, or constricted part, separates the crown from the root. The chief substance composing the tooth is a kind of modified bone called dentine. The blood and nerve supply are contained in the cavity of the tooth.

The greater proportion of a tooth is composed of mineral matter, very little animal matter entering into its composition. If, then, baby is to have good sound teeth, foods which contain mineral salts must be given. Fresh milk contains these fine bone and tooth-making substances. (See chapter on "Food.")

Care of the Milk Teeth.—These teeth should be carefully looked after, as the buds or germs of the permanent teeth are being formed in the gums whilst the milk teeth are still in use, and any disorder of the first may also affect the permanent teeth. Delay in cutting the milk teeth is often the precursor of soft and delicate permanent teeth, and a frequent cause of ill-health in later life.

If a teething-ring is used, it should be secured to the child to prevent its dropping on the ground, and often cleansed in boracic or soda water, and *boiled* occasionally.

Use of Toothbrush.—Before the eruption of the teeth the mouth should be carefully cleansed daily with the wrapped finger or swab, dipped in boracic lotion. (See chapter on "Baby's Toilet.")

As soon as the eight incisors are cut, a tiny first toothbrush may be used. Some simple alkaline or

powder may be used, such as bicarbonate of soda in warm water, or bicarbonate of soda and precipitated chalk, in the proportion of 2 to 6 oz.

The good health-habit of caring for the teeth, thus begun in childhood, should never be allowed to lapse, and as soon as the child is old enough to use the toothbrush for itself, it should be encouraged to do so.

When a few teeth have been cut it is a good plan to allow baby to bite at a good, hard, clean crust daily. This is good for the gums, and helps to cut the teeth. It is an excellent exercise for the jaws, and tends to their proper development and good shape.

Falling of the Milk or Temporary Teeth.—These should fall out *without decay*, to allow of the development of the jaws and the eruption of the permanent teeth.

Should a tooth decay in spite of care in the temporary set it should be extracted, unless it be an eye tooth or the last molar. These should never be prematurely removed, or overcrowding of the second teeth may occur.

The Permanent Teeth generally come in the following order:—

6th year.—Four first molars.
8th „ „ central incisors.
9th „ „ lateral incisors.
10th „ „ first bicuspids.
11th „ „ second bicuspids.
12th „ „ canine.
13th „ „ Four second molars.

17th to 24th year—Four third molars, or "wisdom teeth."

CHAPTER XI.

BABY'S TOILET.

BABY'S bath and toilet is a very important ceremonial, the details of which should be carefully carried out if benefit, and not discomfort and even danger, to the child is to follow.

The functions of the skin must be known before one can realize how important is strict cleanliness in relation to baby's health. The skin is for protection of the deeper tissues, and acts also as a regulator of the temperature; but its most important function is as an excretory organ in getting rid of certain waste matters from the body. We can see, therefore, that a clean soft skin, with pores unobstructed, is necessary to health and development. The daily bath, then, should never be omitted except by doctor's orders.

A healthy baby should enjoy its bath, and if it does not, it is usually because of undue time taken, or carelessness of some detail in giving it. The bath must be given with careful gentleness, neither fussing nor taking too long over it.

When to give the Bath.—Baby's bath should be given during the morning, at least *two hours* after a meal, in order that it may not interfere with diges-

tion, and should be given at the same time daily if possible.

In the case of older children it is often of advantage to bathe them at night, as the dust and perspiration of play will then be got rid of; and a bath is soothing, and promotes sound sleep.

The Room must be warm and free from draughts, and for baby's bath a good fire should be burning. A screen should be placed round the bath and the nurse's chair, and if necessary, the door locked to prevent passing in and out, and causing draughts and chills.

Have everything at hand which will be required for the bath and subsequent dressing before taking baby up from the cot. Place the basket handy, with napkins dried and folded, towels warmed, and the day clothes aired and ready to put on.

The Bath used should not be too big, and should be kept exclusively for baby's use. The best bath is made of white enamelled iron, and is fitted into a proper frame or stand, which raises it to a convenient height for the mother or nurse. It is usually called the "nursery" bath. An ordinary porcelain or galvanized iron bath placed upon a chair will serve very nicely.

If the child is timid or nervous of the water, a *hammock* bath may be used. In this the baby rests on a broad piece of stout canvas which is slung across the bath. The hammock can quite easily be made at home and secured to the bath handles.

The Bath Water.—The bath should be about half full of water, at a temperature of 100° F. to begin with. This should be gradually cooled down as baby

grows older to about 93° F. *Rain* water should be used if possible, and *hard* water should be avoided. A little milk added to the water tends to soften it, or the use of an oatmeal bag.

The temperature of the bath should be verified by using a bath thermometer, which should be placed at the bottom of the bath. Bath thermometers can be bought from ninepence. Failing this, test the water with the elbow, not with the hand.

The cold water should be put in first, as serious accidents have happened when nurse or mother has been absent getting the cold water. When a bath has been prepared little children should not be left alone beside it.

The soap used should be very carefully chosen, as baby's skin is very sensitive and easily roughened. The Allenbury baby soap, or any good superfatted make, should be used, or if means do not permit, then pure white curd soap procured from a good chemist is excellent. Avoid all brightly coloured or heavily perfumed varieties. These are often made of coarse or rancid materials, and the perfume hides the fact.

The towels should be of the softest make possible, fairly large, and of course should be kept exclusively for baby's use. Turkish towelling is very good and is generally used, with a soft towel of diaper for the face. They should be both aired and warmed before being used.

The Sponge.—In well-to-do homes two sponges are used: a very soft cup-sponge for the face and head, and one for rinsing. Good substitutes for the sponge are a scrap of soft white flannel left over from the

making of the clothes, or, better still, a nice washing glove. Washing gloves can be made from soft Turkish towelling; and four can be cut from a half-yard square, and should be pinned together and placed ready in baby's basket.

Dusting Powder.—After the bath a good powder is commonly used, especially for the folds and creases of the baby's skin. This is very necessary in the case of a fleshy baby, where the folds of skin lie one over another, and where, by constant rubbing, chafing may be produced, or even a form of eczema. With a very fat baby it may be necessary to separate and wash between these folds with oatmeal water, and to use fine dusting powder afterwards.

As violet powder is so often adulterated, especially the cheap and highly-perfumed brands, they should be avoided and a good make chosen.

An excellent home-made dusting powder is composed of equal quantities of (1) white starch well powdered, and (2) boracic powder mixed well together. This is cheap and good. The boracic acid is perfectly non-irritating, and is also a mild antiseptic. Another powder is made of equal parts of powdered starch and oxide of zinc or talcum powder.

The powder should be kept in a covered box, free from dust, and is usually applied with a puff. A much more cleanly way is to use soft wads of cotton wool, which can be frequently changed; or the powder may be applied directly from a tiny dredger, and then rubbed in by hand.

Washing Baby.—When all is quite ready, the mother or nurse should prepare herself by rolling up her sleeves and putting on a mackintosh apron, over

which should be tied a soft flannel or Turkish towelling apron. A calico or upper mackintosh apron is much too chilly and uncomfortable for an undressed child to lie upon.

If a hammock bath is not used, it is wise to fold a thick towel or piece of flannel and place it in the bottom of the bath. This is much cosier, and also prevents baby from slipping on the hard surface when placed in the bath. Quickly undress the child by pulling the garments down over the feet, covering up the little body with a fold of the warm apron.

While supporting baby carefully the head should be sponged and soaped all over, great care being taken that water does not trickle into either the eyes or ears.

Next rub the body gently all over with the sponge or washing glove, using a reasonable amount of soap.

Then, supporting the head and back firmly along the left arm, gently lower the baby into the water. Sponge and rinse well and quickly, allowing the water to run all over the body, and carefully rinse all soap from the head.

Lift baby out of the bath, lay on the soft apron, cover with a warm towel, and begin to dry the head and face. Continue the drying downwards, and cover up each part as soon as dried.

See that *every part* is carefully and thoroughly dried, especially such as are liable to chafe. Remember that, both in washing and drying, quick but gentle movement is necessary.

If any redness or chafing is noticed, a little simple ointment, such as pure vaseline or boracic ointment, may be rubbed in.

Now give a light dusting of powder all over, after which comes the final gentle massage, or rubbing with the hand, which should be dry, warm, and without rings.

This last rubbing, if properly done, is often of the greatest good, soothing and yet helping the circulation, before the warm, clean day clothes are put on.

Care of the Eyes, Mouth, Ears, and Nostrils.—These all require a special toilet, which may be done before or after the bath. The latter is probably the better, as it is rather trying and often causes crying on the part of the baby.

For the Eyes.—Have ready (1) a small quantity of mild boracic lotion or boiled water, and (2) some wads of absorbent cotton-wool.

Dip a wad into the lotion and let a drop fall into each eye, then wipe each carefully with a second piece. Do each eye separately, as one may, if affected, infect the other. If at any time the eyes are red, or contain any discharge, draw the attention of the doctor to this *at once.* Neglect of babies' eyes leads to a terrible form of ophthalmia, which may result in blindness. Burn the cotton-wool wads at once after use.

For cleansing the *mouth,* small squares of soft white rag, previously sterilized by boiling, should be in readiness. Wrap one of these pieces round the finger, dip in boiled water, and *very gently* wipe all over the baby's mouth; while cleaning, carefully avoid undue pressure on the mucous membrane, which is very sensitive and easily abraded. This should be done regularly from birth until the first

eight teeth are cut, when the first size toothbrush should be substituted.

The *ears* need very careful washing and drying. A separate and tiny piece of soft white boiled rag should be used. Dry very carefully with a piece of absorbent cotton-wool, or inflammation and earache, and even deafness, may result.

The *nostrils* should be carefully cleaned night and morning with a little swab, made by rolling films of cotton-wool round a match-stick. Dip the swab into lotion or boiled water, and gently remove any dry mucus, etc.

Should the nostrils from any reason become blocked, the swab may be dipped in olive oil to soften the obstruction.

All wads of cotton-wool and pieces of rag must be burnt after use, and fresh, clean pieces taken for each little operation.

After dressing, baby's hair must be gently brushed with a soft hairbrush, after which the child will be ready for its breakfast, and afterwards for the morning nap.

Baby's Basket and its Contents.

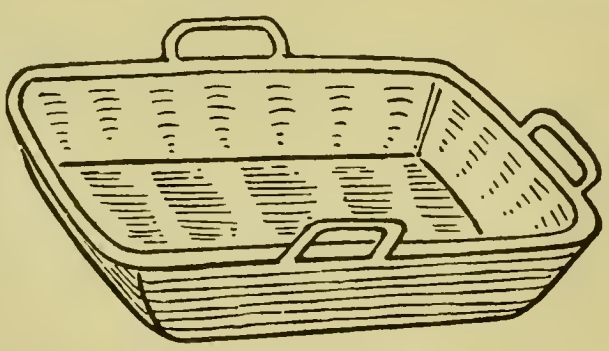
While baby's basket is not an actual necessity it is a great convenience, and is used to hold and keep together all the articles needed for the washing and dressing. Even in the most modest of households a basket is usually provided, and draped and prepared with great care.

The baskets used range from the plain flat form, costing less than two shillings, to those most elabor-

ately trimmed and draped to match the cot, and costing several pounds.

A plain flat basket undraped is shown in the diagram. A flat cardboard box may serve. Either of these may be done up at home at very little expense.

The basket or box is first of all padded with a good layer of cotton-wool, over which a couple of yards of pretty light-coloured sateen are neatly draped and stitched into place over the foundation. Over this is draped soft washing muslin, either plain or with a tiny spot. The basket is finished off with



Plain Basket.

a neat frill, which may be edged with narrow washing lace.

The basket should be provided with a pincushion to match, and pockets should be made of the draping material to hold all the smaller articles. If not provided with a lid, a cover should be made of the draping material to keep all inside the basket free from dust.

Contents of Basket.—The basket should contain :—

(1.) A full set of baby's first clothing (see "Clothing").

(2.) A set of napkins or towelettes.

(3.) A soft flannel apron for the use of nurse or mother when washing baby.

(4.) Dusting powder, which should be either home-made or of a good, well-known brand. This should be ready either in a dredger or a powder-box. Cheap powder-boxes of wood or xylonite can be used.

(5.) A powder-puff either of the "snowball" or ordinary silk-tipped variety, or, better still, pieces of absorbent wool, which can be destroyed after use.

(6.) Baby's hairbrush, with soft bristles, which can be had in a variety of settings—plain wood, mother-of-pearl, or tortoiseshell.

Basket Draped.

(7.) Baby's soap, in box or case; this should be plain white curd, or some good superfatted kind.

(8.) Two sponges, or a piece of soft white flannel, or a soft washing glove. These should be kept in a box or bag.

(9.) Good nickel safety-pins, graduated in size, and with properly-guarded points, should be placed ready in the pincushion, or arranged in a safety-pin cruet.

(10.) A jar or pot of vaseline or lanoline, and a skein of strong linen thread, boiled and sterilized, should be kept in a corked bottle.

(11.) Needles, sewing-cotton, and a thimble should

be kept ready for sewing on the binder, as well as a pair of blunt-pointed scissors.

(12.) A piece of soft boiled old linen should be cut up into small squares, and pinned together ready for use in wiping out baby's mouth or eyes or ears.

(13.) For the care of the eyes will be needed a small quantity of boracic acid in powder or crystals.

(14.) A quarter-pound packet of absorbent cotton-wool should also be placed in the basket.

(15.) A food and bath thermometer, or a combined instrument, which can be purchased for ninepence.

(16.) Two soft towels and some antiseptic dressing.

(17.) A small blanket or square of flannel will complete the list of things needed.

CHAPTER XII.

BABY'S OUTING AND EXERCISE.

If baby is to thrive, and be healthy and rosy, it must be taken out of doors as much as possible. As a rule this is not done until it is about a fortnight old, especially if born during spring or winter.

Up to that time it is usually exercised in the nurse's arms by being taken from one well ventilated room to another, or in front of an open window.

The importance of the daily open-air outing cannot be too much emphasized, and it should on no account be missed unless by doctor's orders, or if the day be very wet or foggy, or a cold wind be blowing. A fresh-air baby digests better, sleeps better, and looks better than one "coddled" up in a hot room or nursery.

How to Carry Baby.—For the first few weeks baby is usually carried out, and great care should be taken to see that it is held properly. The head and body should lean against the nurse's breast, while her left forearm supports the spine. She grasps the child's thighs with the fingers of the left hand, while the right hand, being free, is also placed over the child's body, and further supports its thighs. The great point is to see that the head (which is

heavy in proportion) and the spine are thoroughly well supported.

As the legs are hanging, great care must be taken to see that they are very warmly clothed with warm woollen overalls, under the barracoat and shawl. (See chapter on "Baby's Clothing.")

As the child gets older and heavier it is taken out in a perambulator or baby-carriage, where it should always rest in the *recumbent* or lying-down position till at least *five months* old.

The Perambulator.—The baby should, if possible, be provided with a "pram" rather than one of the modern, much used "go-carts," *which are very harmful to young children.* They force the child to keep in a sitting position when it should be lying down. They do not protect the lower limbs, which dangle cold and uncovered, and they give no support to the heavy head. They offer no protection from wind, rain, or the sun's glare.

Where means are limited, a long stout box or packing case may be mounted on wheels, and one has seen quite a presentable baby-carriage, home-made by a handy father in this way. The pram should be provided with a mattress, which can be made at home of unbleached calico, stuffed with cut chaff, soft hay, etc. This is cheap and can be easily renewed. A small down pillow is also required.

In cold weather a hot-water bottle covered with a piece of old blanket must be placed in the pram near to but not touching baby's feet. Then the child, properly dressed, should be placed in a "sleeping bag," where, cosy and warm, it will take no harm.

Directions for Making a Sleeping Bag for Baby's "Pram" or Cot.

Three oz. of thick petticoat wool. Crimson or scarlet looks warm and wears well. One pair of thick bone needles.

It is made in "double knitting," and there is no joining up required. It is very quickly and easily knitted. (1) Cast on 90 stitches; knit loosely. (2) Knit 1 and slip 1 alternately to end of row. (3) Repeat every row alike, and it will be seen that the slipped stitch of one row is knitted in the next, and the effect is to knit a hollow bag. (4) Knit to the required length (about 100 rows). (5) The stitches must now be separated alternately on to two needles. (6) Turn the bag, which will be on the wrong side. (7) Cast off very loosely. (8) Crochet a row of holes for a cord or ribbon.

Place baby's extremities in this bag, and draw the cord well up round the waist, and secure.

The pram should be wheeled with care—no jarring or jolting over rough places to frighten and upset the child. Needless to say, babies and young children should never be out after sunset.

When time does not permit of baby being taken out, it may still spend a good many hours out of doors.

If protected and properly clothed, it may be placed in a cot, pram, or basket as soon as the sun has warmed the air in the morning, and should sleep as much as possible out of doors on a balcony or verandah or in a shady part of the garden or yard.

In very bad weather, the child, dressed as for outdoor, can have an airing by being placed in a room with the window widely opened.

Indoors, both day and night, the room the baby occupies should *always* have an *open window.* The more fresh air the child has the hardier he becomes and the better fortified to withstand the attacks of the usual infantile maladies. This method of bringing up a child is sensible, and should not be confounded with the old idea of hardening a child by subjecting its uncovered limbs to cold and exposure. What is necessary and good is fresh air; exposing the limbs uncovered is harmful, as it causes undue loss of heat.

In this respect Dr. Helen Campbell says: "The baby who is thus reared in a fresh air existence will develop a sound constitution and healthy lungs; his sleep will be calm and refreshing; and he will have a good resistance to disease. The child who is *not,* will lack all these great advantages in his life's battle; will take cold frequently, and perspire very much."

As much *sunshine* as possible is also necessary for growth. A baby is like a plant in this respect, and soon becomes pale and sickly if deprived of sunshine, light, and air.

Exercise is needed for growth and development, and baby should be given every opportunity of exercising its muscles. Even the tiny infant should get this, by being allowed to kick and stretch while lying undressed on the lap, and should be helped by the rubbing or massage given after the daily bath.

About the fourth month, when baby attempts to raise himself up, and grasps things, he should be taken from the cot and placed upon a well-guarded bed or on a nursery carpet, and there allowed to roll and kick and stretch.

A "nursery carpet" can be made of a large bag or mattress of unbleached calico, filled with chaff or hay, and covered with an old clean counterpane. In the homes of the well-to-do an *exercise pen* or portable playground is used. These are really raised wooden fences, placed around a mattress or nursery carpet. Baby must be kept *off the floor*, for fear of draughts, dust, and dirt.

It may now be given some quite simple toys, such as a wool ball, an indiarubber doll, etc. Playthings used at this age, should be safe, clean, and unpainted. The fact of playing with these toys helps to bring muscles into use, especially those of the hands and arms.

The child next begins to crawl and creep about, in preparation for walking, and should be so dressed and guarded that it is able to do this with impunity.

It will pull itself up and steady itself to try to acquire its balance. It should not be suppressed in these attempts, but at the same time a baby *must never be taught to walk.*

A baby will walk when it can balance itself, and when its legs are strong enough to bear it, and any attempt to force this prematurely will often end in causing deformities, such as bow-legs, especially if the baby is heavy.

The time of walking varies with the state of

health and the child's temperament. Naturally a bright, quick child will walk at an earlier age than a slow one; and as children are so imitative, one brought up with others usually walks earlier than one brought up alone.

CHAPTER XIII.

BABY'S TRAINING AND HABITS.

THE training of the child cannot be begun too early in life. The popular idea of leaving this till later is quite wrong. Babies are creatures of habit. Good or bad habits may very easily be formed, but are hard to be broken off; so that training of a kind should be attempted from the very first. To form good and *regular* habits is then really the beginning of baby's moral training.

"The object of a child's training must be to fit it to take its place in a society which is based on the principle of individual liberty. Our part in its training will be, in infancy, chiefly the formation of good habits; in early childhood, the development of self-control; in later childhood, the inculcation of altruism and habits of industry."

Regularity.—A first essential in the management of a baby's daily life is regularity. From the first it should eat, sleep, be washed and changed *by the clock.* This ensures health and happiness for itself, the establishment of a stable nervous system, and, no less, the comfort of all concerned in its up-bringing. This regularity in the baby's life from the first has a moral as well as a health value;

for, by getting the child accustomed to good habits of living, we sow the first seeds of obedience and good conduct later.

Feeding.—As noticed before, baby must be fed regularly and by the clock. After each meal it should be laid quietly down in its cot. It should never be jigged or dandled after a meal.

Sleeping.—From the first baby must be taught to sleep alone in its own cradle or cot. It must not be nursed or rocked to sleep, but should be made comfortable and warm and simply left, when it will learn to go to sleep. A child treated thus will learn to like its cot, and when awake will often lie and coo and kick, or may be given a soft toy to play with.

Breathing.— The infant must be taught to breathe properly—that is, through the nose and not by the mouth. When asleep see that the mouth is closed; if not, the throat may become dry and rough, and the tonsils enlarge, and cause trouble later. If a child persistently breathes by the mouth it may point to some obstruction, such as enlarged tonsils or adenoid growths, and a doctor should be consulted on the matter.

Baby comforters or dumb teats should *never* be permitted. It is unnatural for a child to be continually sucking, and causes an excessive flow and subsequent waste of saliva. (1) Their constant use is said to be one of the causes of adenoid growths. (2) They spoil the shape of the mouth. (3) They deprive the gums of their proper blood supply at the expense of the teeth, which often suffer in consequence. (4) They are also the means of introducing

into the mouth and system the micro-organisms of disease which they gather when dropped.

Cleanliness.—Training in this important detail cannot be begun too soon. After every meal, and when the napkin is changed, the baby should be "held out;" and if this good habit becomes established, it will be able to do without napkins, especially in the home, at quite an early age.

The Nervous System should receive a great deal of attention. The brain is immature and undeveloped and the nerves unstable, and the controlling influence is absent to a great extent. The nervous system is therefore very sensitive and excitable, and if unduly stimulated may give rise to serious trouble later on in life. A baby should be kept very quiet, especially during sleep, and should not have its attention attracted by loud noises or bright lights. It should not be made into a plaything, and not much noticed and shouted at by well-meaning, if ignorant, visitors or relatives.

Kissing.—The common practice of kissing the baby is not advisable. Sore throats and cold and infectious diseases may be communicated in this way. A rule should be made from the first, and rigidly carried out, that if the baby is to be kissed at all it should be only on *the hand.*

Evils of Teething Powders and Mixtures.— The less medicine given to a baby the better, and with the exception of very simple aperients none should be given without consulting a medical man. Soothing syrups, etc., must *never* be given, as they all contain opium in one form or other. Infants tolerate opium very badly, and thousands of babies' lives have been

sacrificed through its use. No nurse or mother should give any of these preparations to keep baby quiet; they are *poison* to a young child. If a baby is constantly crying it cannot be well, and the proper method would be to consult a doctor.

The Baby's Cry.— As crying is the only way in which baby can make known its wants and troubles it is very important to be able to recognize what its cry means. A little crying now and then will do no harm, but will help to expand the lungs.

(1.) A baby may cry because it is *hungry*.

(2.) Its cry may be the result of discomfort from an already overloaded stomach.

(3.) It may be *thirsty*, as the baby requires drink as well as food. It should have a few teaspoonfuls of cold boiled water two or three times a day, especially during hot weather or while teething.

(4.) It may be *cold*. It should then be taken up and thoroughly warmed, and the little hot-water bottle put in place before returning it to its cot.

(5.) It may be *too hot*, or overweighted with heavy bedclothes. These should be light, but warm and well ventilated.

(6.) It may be *uncomfortable* through its napkin being wet, or clothes too tight, or through the pricking of a pin. These causes should, of course, be remedied at once.

(7.) It may be in pain through *teething*, when the gums may be gently rubbed with a perfectly clean finger dipped in boiled water.

(8.) It may be in pain through stomach-ache or colic or flatulence. This is common enough during the very early months, while the stomach and

intestines are becoming accustomed to their work of digestion. The child should be taken up, its binder loosened, and it should be laid face downward over the lap or shoulder. It should then be placed on the lap in front of a fire, and its abdomen gently rubbed by the warmed hand. Or baby may be laid face-downward over a rubber hot-water bottle half filled with *warm* water. Before returning to its cot, see that the feet and legs are warm and comfortable.

If, however, baby cries and refuses to settle in its cot, see that it is warm, comfortable, and free from pain, and try to soothe *but do not take it up.* A very young child can be taught that the habit of crying merely to be taken up is not to be encouraged.

Watchfulness.—To keep the baby healthy and happy, and provide during the first year of life for its future welfare, needs *constant watchfulness and care.* No detail is too trifling to claim attention, for neglect of seemingly unimportant matters may have bad consequences. The methods by which the mother is to train the child must be carefully thought out, and when decided upon, carried out on definite and invariable lines.

The Influences which should be brought to bear on the child are: (1) Love, which is an hourly teacher. (2) Observance of law and order, in which the child finds a sense of comfort and satisfaction. He will later learn to adapt himself to it and find it governs Nature's operations. (3) A sense of beauty in his home and surroundings will lead to an appreciation of form and colour, and increase his mental activity later. Plato says: "The most important part of education is right training in the nursery."

CHAPTER XIV.

BABY'S AILMENTS.—I.

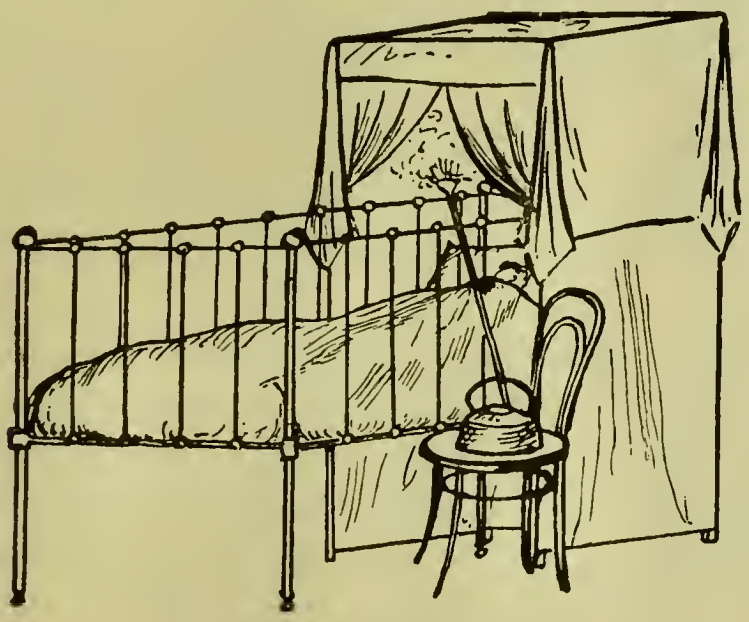
CROUP is one of those common and often serious ailments of early childhood. Though one must have the attendance of a doctor, it is also necessary for mothers and home nurses to know what to do till the doctor comes. Symptoms may arise which, if not promptly and properly attended to, may prove fatal to the little patient.

Croup is really an inflammation of the larynx or voice-box, an organ which lies over the windpipe. This inflammation or catarrh gives rise to a difficulty of breathing, owing to the space between the voice-producing cords becoming narrowed, or even obstructed, by the swelling due to the disease.

Croup almost always produces hoarseness or even loss of voice; and the patient, in breathing, often makes a peculiar whistling noise, which is caused by the air being drawn in through the narrowed opening. This noise is called *stridor*, and is an indication of great danger, and unless speedily relieved the patient may die very suddenly. Any sign of *stridor* should, therefore, be carefully watched for, and if it occurs the doctor should be summoned at once.

There are three recognized forms of croup—namely (1) membranous; (2) catarrhal, and (3) spasmodic.

Membranous Croup, or diphtheria of the windpipe, is a very serious though not very common form, in which along with the inflammation there is a peculiar growth called a "false membrane." This sometimes spreads to the nose and down to the throat, and if not got rid of may cause death by suffocation. A



HOME-MADE STEAM-TENT.

small operation may have to be performed to save the child's life.

While waiting for the doctor the air of the room should be made *moist* by the use of a bronchitis kettle, or by hanging wet towels in front of the fire, and constantly changing them as they cease to steam. A hot bath and a steam-tent should also be prepared.

A simple *steam-tent* can be quickly and easily made with a large threefold draught-screen, or,

failing this, two ordinary single screens. Over these are draped and pinned sheets, so as to form over the head of the cot or bed a kind of tent, into which the steam is directed by means of a long-spouted bronchitis kettle. This may stand over a spirit lamp on a chair or stool by the cot or bedside, and should be kept replenished frequently from a second kettle of boiling water. (See diagram.)

Spasmodic Croup usually attacks delicate children, especially those of a highly strung or nervous temperament. *Catarrhal* and spasmodic forms are not usually fatal. The nursing and home treatment of these forms are practically the same. A doctor must be sent for at once, and while waiting his arrival the mother or home nurse should (1) place the child into a hot mustard bath (one tablespoonful of mustard to the gallon of water); (2) dry the child quickly; and (3) wrap it in a loose woollen garment and place in a warm bed between the blankets. While the bath is preparing, place hot fomentations, or a large bath-sponge wrung out of very hot water, to the child's throat. If the breathing is laboured and shallow the nurse should give an emetic, such as half a teaspoonful of ipecacuanha wine, in a little cold water, or half a teaspoonful of powdered alum in syrup or run honey.

If vomiting is not produced, and the doctor has not yet arrived, she must repeat the dose in fifteen minutes. In spasmodic croup these measures will frequently allay the spasm.

When nursing cases of croup the mother or nurse should always be on her guard against collapse of

one or both lungs. When this happens the child looks dull and stupid, and there is generally a blue appearance about the face, especially round the mouth.

If the lung or lungs are not expanded at once death may ensue. An emetic must be given immediately, as in spasmodic croup, or the back of the throat must be tickled with a feather or the forefinger. If this causes the child to vomit, all may be well. The act of vomiting causes, both before and after, a deep breath to be taken, which will reinflate the collapsing lung. The after-nursing consists in keeping the child warm, and care must be taken to keep the skin and the bowels acting freely. Warm bland drinks are very useful. The doctor will order light but nourishing diet.

"Croupy" children need a great deal of care and attention. Their clothing must always be of woollen, and while they need all the fresh air possible, they must never be out after sundown or in damp weather. Doses of cod-liver oil or virol, given regularly, often help to ward off, or at least lessen, the severity of the attacks.

Convulsions, or "fits" as they are popularly called, are both common and fatal amongst babies. They may occur at the beginning of an acute illness, and take the place of the *rigor* or shivering fit which usually ushers in illness in the adult. They are very common in rickety babies.

In many cases convulsions are preventable, and are generally caused (1) by irregular or wrongful feeding, such as the giving of starchy food to babies under nine months old; (2) by teething

troubles; and (3) by bad health surroundings, want of fresh air, etc.

The time in an infant's life when convulsions are most likely to occur is during the teething period. The child then requires more than ordinary care. Its general conditions must be watched, the bowels well regulated, and constipation guarded against.

Take the child out into the open air as much as possible, to brace it up for the coming trials. The diet should not be changed from a purely milk one to one of more solid character while the teeth are appearing through the gums.

A little cool boiled water or barley water should be given as a drink to allay the thirst and cool the hot mouth. The gums may be gently rubbed with glycerine and borax in equal parts. (See chapter on "Teething").

There may be warnings of the approach of a convulsion fit, such as twitching of the face and clenching of the hands. If these are noticed, and the child receives careful and prompt attention, the fit may sometimes be prevented, or at least shortened. As soon as the symptoms are noticed, remove the child's clothing, place it up to the neck in a warm bath, and apply cold applications to the head. Keep up this treatment for fifteen minutes, maintaining the heat of the bath by adding more hot water, and the cold applications to the head should be frequently renewed. Afterwards wrap up the child in warm woollens, and put to bed and try to get it to sleep. Little or no food must be given for some time after the fit, as the stomach and bowels should rest, but little sips of fresh water

may be given. The doctor will indicate the medicine, if any is necessary.

After the fit and for some little time great care and regularity must be observed with reference to the feeding, sleeping, and outing of the little patient, to prevent a recurrence of the trouble.

CHAPTER XV.

BABY'S AILMENTS.—II.

Infantile Diarrhœa.—During July, August, and September 1906 there were in the seventy-six large towns of England and Wales 14,306 deaths from infantile diarrhœa; and during the very hot summer of 1911 there were 600 deaths per week from this cause in London alone.

Infantile diarrhœas are usually classified according to the features of the case and the character of the stools, but from a practical point of view the difference of the types is a matter of more or less indifference—indeed, Dr. Cheadle, an authority on children's diseases, says that the multiplication of names has led to much confusion, and that the difference is *chiefly one of degree.* This may range from the slight disturbance set up by improper or indigestible food to a violent and extreme disturbance often called "infantile cholera" set up by the poisons of decomposition or by contamination of the food supply by such "carriers" as the household fly.

Breast-fed babies very seldom suffer from diarrhœa in any form, and naturally never from the "infective" variety, which is commonest in large towns and during hot weather, when the dust, heat, and overcrowding have a bad influence on the milk supply.

Symptoms.—There is sickness and often vomiting, with pain and purging; the stools are liquid and offensive. The incessant vomiting and purging soon causes the child's tissues to shrink. It rapidly emaciates, the eyes become sunken, and they and the mouth often remain open during sleep. This is due to loss of tone of the muscles controlling these organs, and is a significant sign. There is marked prostration, the infant is collapsed, with cold, blue extremities; the skin is shrivelled and of an ashy-like pallor, the abdomen loose and flat. The temperature often falls below normal, and the pulse is small and very quick. The child may die after 24 to 48 hours.

Mothers and nurses should *never disregard an attack of diarrhœa* or vomiting, however slight, but should *send for a doctor at once*, and before prostration has set in.

If the weather is warm and the baby bottle-fed the danger is all the greater, and no time must be lost. While waiting for the doctor, the baby may be given (1) a dose of simple castor oil, one and a half teaspoonfuls under six months, two teaspoonfuls from six months to twelve months. This is to clear away the offending and decomposing food from the irritated bowel. (2) The child must be kept very warm, and the legs, thighs, feet, and abdomen should be wrapped up separately either in warmed flannel, or, failing this, warmed cotton wool. (3) It must be kept very quiet in its cot, which may be made warm with warm-water bottles. (4) All milk foods must be stopped at once, and nothing given but drinks of plain boiled and slightly sweetened water, or thin well-boiled barley water. The baby must have plenty of fluid to make

up for the great drain of fluid from its body, which is in itself a danger.

No food of any kind, other than the drinks of plain boiled water, barley or rice water, should be given until the doctor comes. Astringents or soothing mixtures are also forbidden; no medicine but the initial dose of simple castor oil should be given.

After 24 hours the doctor generally orders nourishment, to be given in small quantities of, say, 1 tablespoonful every hour. A suitable food often ordered is *albumen water.* This may be prepared as follows—(1) Mix well together in any clean vessel the white of a fresh egg and 6 ounces of cold boiled water. (2) Put the two into a large clean bottle, cork well, and shake to and fro till a smooth mixture inclined to froth is formed. This can also be made with barley or rice water instead of the plain water. The albumen water, sweetened, should be put into baby's bottle, which can be plunged into hot water to warm the mixture before giving it.

During convalescence the mother or nurse will have to be very careful and obey doctor's orders implicitly, especially with regard to resuming ordinary food, in order to prevent a relapse. While keeping the child warm, care should be taken that it breathes pure fresh air and is kept very clean, as good hygienic surroundings materially help on recovery in this very trying and much to be dreaded disease.

Prevention.—Much can be done to prevent this disease, especially in artificially fed babies, by care and cleanliness with regard to milk. In hot weather the milk should be boiled as soon as received, and should then be placed in a perfectly clean vessel and

rapidly cooled. It should be kept in a clean, cool place till wanted, preferably on the shelf of a well-ventilated larder, and should be covered over with a piece of fine, clean muslin, to prevent the entrance of dust and germs and flies.

The milk should be bought at such times as to secure some measure of freshness, and if it shows the least sign of sourness should not be used, as the merest trace will set up fermentation in a whole bottleful. During hot weather extra care must be bestowed on bottles and teats, which should be frequently boiled.

CHAPTER XVI.

BABY'S AILMENTS.—III.

RICKETS is essentially a disease of childhood, occurring usually from about the sixth month to the second year of life. It is so common in this country that French doctors call it the "English disease." Dr. Cheadle, a well-known authority, says: "The ordinary form of rickets with which we are concerned, being due so largely to faults of feeding, aided in many cases by other conditions of bad hygiene, is clearly *a preventable disease.*

"I will not go so far as to say that rickets ought never to occur, as a result of artificial feeding, but it should at least be extremely rare. Its occurrence is too often a grave reflection upon the medical man, or the nurse, or the mother under whose directions the diet of the child has been regulated."

Rickets is caused by wrong feeding of the child, but it is often helped into existence by bad hygienic conditions—such as want of fresh air and sunshine, dampness of soil, or dirty or unsuitable clothing.

If rickets is to be prevented, the child must be properly fed. The three most necessary elements in the food of a child are (1) animal fat, (2) proteid

or nitrogenous stuff, and (3) earthy salts, such as lime salts. The "fresh" or antiscorbutic element must also be present in the food supplied. If, then, the baby does not have these necessary elements in its food, it suffers in many ways.

It Suffers in the Bony Structures.—When a child is born its bones are in a soft, immature state, the hard white substance not yet having been formed. This is chiefly done during the two first years of life. If during this time the necessary elements in the food are withheld, rickets may intervene; the bones may remain soft and spongy, bending and yielding. quite easily. They will also be extremely painful and tender to the touch. Thus, when a heavy rickety baby is put upon its soft-boned legs, they will naturally bend, and bow-legs or knock-knees will be the result—deformities which will remain after the disease which caused them has gone.

The coming of the teeth will also be delayed, or when they do come they may decay almost immediately.

The bones are not the only tissues of the body which are affected by rickets, as many people seem to think. There is also *muscular debility* due to it. The child is soft-fleshed and flabby, and the muscles are often so feeble that it cannot sit upright. This feebleness of muscles, along with the softness of bone in the ribs, interferes with the proper breathing of the child.

Through the want of the necessary food elements the *blood* is also very poor, the child is anæmic, and there are often profuse night-sweats.

The *nervous system* also suffers, and the child

is often irritable, excitable, and liable to have croup and convulsion fits.

As Dr. Helen Campbell very aptly puts it: "The rickety child is a jerry-built child with poor blood, and it may show its faulty construction in one way or another from its sixth month to its sixth year, or may collapse altogether and die, as many rickety children do."

The chief point in the *prevention of rickets* is *proper feeding.* Mother's milk should be given whenever it is possible, as it is a well-known fact that breast-fed babies rarely show any signs of rickets. If cow's milk is given, it must be rendered as nearly like human milk as possible (see chapter on "Baby's Food"). Authorities lay a great deal of stress on the importance of *animal fat* being given as an essential part of the food of babies and young children. "The abundance of fat, as cream, in the type-food milk shows its high importance in the nutrition of the young."

If a child be fed on starchy food or common condensed milk, which contains neither cream nor mineral salts, it is more or less liable to be rickety.

In the home nursing of this easily prevented disease, the main point to be kept in view is the food.

The doctor may order raw meat juice. This is made by finely mincing fresh lean beef-steak and leaving it in a vessel for four hours, with just enough water to cover it, then straining it well through fine muslin.

The child must be handled very carefully in washing and dressing, as there is great tenderness

of the bones; and a rickety child will often cry when it is approached, because it is afraid of being handled. Its bones being so soft are also liable to "green stick fracture." This form of fracture is common in children whose bones contain a large amount of fibrous tissue. When it happens, the bone is not broken quite through, but is partly bent and partly broken.

The child should not be nursed much in the arms, nor encouraged to sit up or stand, but should lie in a cot or carriage. When the child must be carried, it should be placed in a shallow basket or on a well-padded board or tray.

When there is profuse *sweating* of the head at night, the latter should be laid on fine flannel, changed as often as necessary. The cot clothes should be very light, on account of the great tenderness of the bones. Flannel pyjamas, or a long flannel nightgown, should be worn. The latter should be pinned with a safety-pin below the feet. The patient must be kept scrupulously clean, and should be as much as possible in the fresh air and sunshine.

Splints may be ordered for these victims of rickets, to keep them off their feet and so rest the overweighted bones. The splints must be well padded, to prevent chafing or abrasions, and should project about three inches below the soles of the feet. They should, of course, be removed at night.

CHAPTER XVII.

RECIPES SUITABLE FOR BABY.

1. Barley Water.

1 oz. pearl barley; water.

METHOD.

(1) Put the barley into a saucepan with 1 pint of cold water; (2) bring it to the boil; (3) strain it; (4) add a second pint of water; (5) boil it gently for 1 hour; (6) strain, and it is ready for use.

2. Rice Water.

1 tablespoonful of rice; water.

METHOD.

(1) Wash the rice well; (2) place in 1 pint of warm water; (3) keep warm for 2 hours; (4) boil gently for 1 hour, strain, and it is ready for use as indicated.

3. Oatmeal Water.

(1) Robinson's Patent Groats, or oatmeal flour; water.

METHOD.

(1) Take 2 teaspoonfuls of groats or flour, and mix to a smooth paste with a little cold water;

(2) heat 1 pint of water in a double cooker till it boils; (3) stir in the oat flour, and bring to the boil; (4) cook for three-quarters of an hour; (5) strain if lumpy, and add sufficient boiling water to thin, and make up to the original pint.

4. Albumen Water.

The white of a fresh egg; water.

METHOD.

(1) Take the white of a quite fresh egg, and place in a jug or bottle with 6 oz. of cold boiled water; (2) if in jug, beat with egg-beater or fork; if in bottle, *shake* till a smooth but rather frothy mixture is produced.

(This may be made with rice or barley water instead of plain water, if desired.)

5. Whey.

New milk; junket powder.

METHOD.

(1) Warm 1 pint of new milk to 100° F., and stir in 1 measureful of Birk's junket powder; (2) let it stand in a cool place to set, and then break up with a fork, when the whey will separate from the solid curd; (3) strain through double muslin; (4) boil the whey for 2 minutes.

6. Fruit Juices.

(1) Oranges, (2) grapes, or (3) strawberries.

Squeeze out the juice, and strain if necessary through fine muslin. Well sweeten before giving.

Prune Juice.

2 oz. of well-soaked prunes.

(1) Simmer with sugar in 1 pint of water for 1 hour; (2) strain, and serve.

(Useful as a laxative.)

7. Peptonized Milk.

Milk; Fairchild's peptonizing powders.

METHOD.

(1) Take 1 pint of fresh uncooked milk; (2) a small teacupful of cold water; (3) get a large clean bottle; (4) put the contents of 1 tube of peptonizing powder into the clean bottle; (5) add the water, and shake well to dissolve the powder; (6) pour in the milk, and shake all well together; (7) place the bottle in a large basin of water, as hot as the hand can comfortably bear it, for ten minutes; (8) pour the contents of the bottle into a saucepan, sweeten, bring to the boil, and boil for 2 or 3 minutes. This length of time is usually enough to partly pre-digest the milk; if boiled longer the milk will taste very bitter.

8. Artificial Human Milk.

1 pint of new milk, cream, or "top" milk; milk sugar; Birk's junket powder.

METHOD.

(1) Warm the milk to 100° F., then stir in 1 measureful of Birk's junket powder; (2) stand in

a cool place to set, and then break up with a spoon, when the whey will separate from the solid curd; (3) take 1 teacupful of new "top" milk, or milk and cream, 1 teacupful of whey, 1 teaspoonful of sugar of milk; mix, warm to 98° F., and use at once.

9. Bread Jelly.

(*Dr. Cheadle's Recipe.*)

Thick slice (4 oz.) of stale bread.

METHOD.

(1) Place the bread in a basin of cold water, and allow to soak for 6 or 8 hours (this is to clear away the lactic acid formed in fermentation); (2) squeeze out all the water; (3) the resulting pulp is then placed in 1 pint of fresh water and gently boiled for an hour and a half; (4) the thick gruel thus made is strained, rubbed through a hair sieve, and allowed to go cold, when it forms a fine, smooth, jelly-like mass; (5) enough of this jelly is then mixed with warm boiled water to make a food of the consistency of thin cream—about 1 tablespoonful to 8 oz. of water; (6) sweeten with sugar of milk, and put into feeding-bottle.

10. Oatmeal Gruel.

(*Dr. Bernard Myers.*)

Oatmeal; pinch of salt; sugar.

METHOD.

(1) Mix 2 tablespoonfuls of oatmeal, a large pinch of salt, and 1 teaspoonful of sugar together,

then pour on a cup of boiling water; (2) let it cool for half an hour; (3) strain through a fine strainer, and again place on the stove; (4) add 1 cupful of milk, bring the whole mixture to the boil, and serve hot.

11. Raw Meat Juice.

(*Dr. Cheadle.*)

Best rump steak.

METHOD.

(1) Mince finely the best rump steak, and add cold water in the proportion of one part of water to four of meat; (2) this should be well stirred together, and allowed to soak for half an hour cold; (3) the juice should then be forcibly expressed through muslin by twisting.

12. Meat Juice Cooked.

(*Dr. H. Campbell.*)

Juicy steak or mutton.

METHOD.

(1) Take a piece of juicy steak or mutton, grill or fry it over a hot fire until the outside is just seared for about five minutes, turning it twice; (2) remove, cut into small pieces, and express the juice by using a wooden spoon or a double lemon squeezer.

13. Steamed Fish.

Sole, lemon sole, or plaice in fillets.

METHOD.

(1) Carefully arrange the fillets on a buttered plate; (2) place another plate on top; (3) place on

top of a saucepan of boiling water and steam for 20 minutes, or 30 minutes if not filleted; (4) serve in its own sauce.

14. Egg Flip.

METHOD.

(1) Use the white of a fresh egg; (2) remove the stringy pieces, and beat very well; (3) put into a cup, sweeten and flavour, and fill up with milk, stirring well.

15. Milk Jelly.

1 gill milk; 4 tablespoonfuls cream; 5 sheets of gelatine ($\frac{1}{4}$ oz.); 1 oz. loaf sugar; vanilla or other flavouring.

METHOD.

(1.) Dissolve the gelatine in the water (4 tablespoonfuls), add and dissolve the sugar; (2) whisk the cream till slightly thickened, then add it to the milk; (3) strain the dissolved gelatine into the milk, and add flavouring to taste; (4) pour all into a basin, and stir till it begins to set; (5) pour into small wetted moulds and cups.

16. Steamed Custard.

2 yolks of eggs; 1 white of egg; 1 gill milk; 1 teaspoonful castor sugar; vanilla or other flavouring to taste.

METHOD.

(1) Beat the eggs well; (2) heat, but do not boil the milk; (3) when slightly cool, pour milk on to the egg, and add sugar and flavouring; (4) place the

mixture in a buttered mould, or small moulds or cups; (5) cover with buttered paper, and place in a steamer; (6) cook very slowly till the custard is just set; (7) let stand for a few minutes before serving; (8) turn out and serve.

17. Broths.

Veal, mutton, chicken.

METHOD.

(1) Take 1 lb. meat (lean), cut up, and put into a pint of cold water; (2) let stand for at least half an hour, with a pinch of salt; (3) simmer, covered, for three hours, taking care to add boiling water from time to time; (4) strain carefully, and skim off all fat; (5) when warmed for use, broths for very young children are usually thickened with wheat-flour, cornflour, or ground rice. These should be cooked in the broth for at least half an hour.

THE END.

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